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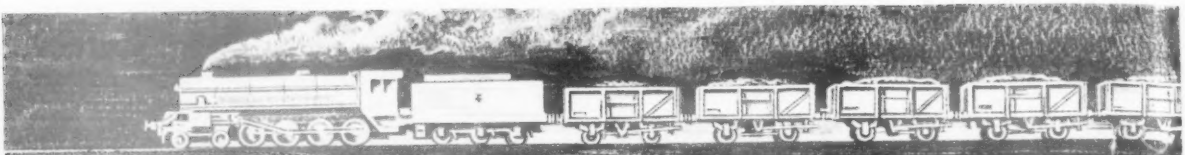
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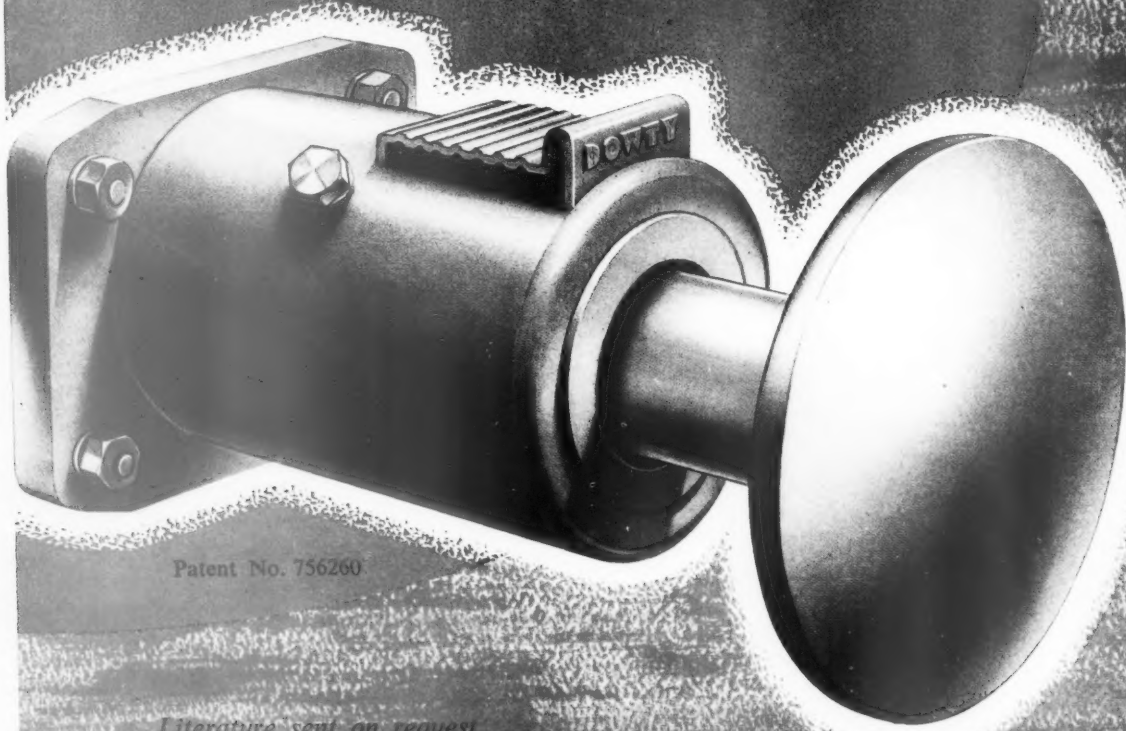
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Ensuring Good Staff Relations

SOUND advice was given last week by Sir Brian Robertson, Chairman of the British Transport Commission, to the annual conference at Hastings of the Council of the Branch Secretaries of the National Union of Railwaymen: to accept, whenever possible, the rulings on staff matters of the local management at the appropriate level, and not to refer matters higher, and so weaken the local machinery. A bad tendency had crept in over the years, he pointed out, to belittle the consequence of the local manager, and to require reference to some authority for every decision. Sir Brian Robertson stated that he had tried, and was trying, to build up the authority and sense of responsibility of the local representatives of management, whilst not detracting from the importance, in the organisation of British Railways, of the Staff Departments at Regional and central headquarters. Whilst agreeing that local managements should be given every encouragement to exercise their functions, we feel that much still can be done by the Commission and its advisers to enhance the status of the local officer through improvements in his salary and conditions. Responsible leaders in the trades unions, we believe, would not deny such obvious measures to achieve smooth working—and to ensure a future supply

of local managers of the right kind. As to negotiations at a national level, Sir Brian Robertson, whilst stating his faith in negotiation as the best method, warned his hearers against overstraining the machinery. The railway industry, he stated, badly needed a period of relaxation of tension; the success of negotiation depended on a genuine desire, by both parties, for agreement. This tacit warning not to demand higher wages at the present time is of particular importance in the light of the agreement in the engineering industry, recorded on another page, on a year's wages standstill. Sir Brian Robertson's insistence on the necessity for all railwaymen to help to win more traffic, to reduce costs, and to improve service, is timely. We do not agree with his remark that nationalisation has changed the relationship of men and management: the change, insofar as a happy relationship did not exist before nationalisation in some departments of the railways—which were very large employers of labour—is characteristic of the age: and many large, privately-owned concerns have long pursued an enlightened industrial policy.

Railways under the Baghdad Pact

THROUGH railway communication between the four Moslem countries which are members of the Baghdad Pact—Turkey, Iraq, Persia, and Pakistan—is one of the measures planned by the Economic Committee of the Pact, which ended its sessions last week, for the promotion of trade and communications between member States. Rail links already exist between the 4-ft. 8½-in. gauge system of the Iraqi State Railways (which also have an extensive metre-gauge mileage) and the standard-gauge Turkish State Railways; between the latter and the Persian (Iranian) State Railways, also of 4 ft. 8½ in. gauge, a connection is nearing completion. The Economic Committee recommends, as a high-priority project, a railway between a suitable point on the Persian railways and Zahidan, the terminus on the Persia/Pakistan frontier of a branch of the North Western Railway of Pakistan, which, like the major railways in the sub-continent of India, is on the 5 ft. 6 in. gauge; unless there is conversion of part of the N.W.R. to standard gauge, or construction of a new line to Karachi, a break-of-gauge problem arises. It is not yet known how the \$5,000,000 provided by the U.S.A. Government for aid, under the Eisenhower Doctrine, for railway and road projects, is to be spent.

New Zealand Railways Losses in 1956-57

THE New Zealand Railways had a net working loss of about £260,000 on their operations during the 1956-57 financial year. The Railways Department turnover for the year was nearly £33 million. In the previous year, operating revenue exceeded expenses by just over £1,430,000. This was turned into a loss when interest charges totalling £3,650,000 were taken into account. Similar interest charges of about this figure are expected to increase this year's total loss to nearly £4 million. The net working loss for the past year is not as bad as estimated last year, when it was predicted to be about £570,000. Commenting on the past year's net working loss, the Minister of Railways, Mr. J. K. McAlpine, has said that revenue did not fulfil expectations because of a falling off in freight traffic during the greater part of the year. The exceptionally wet winter and spring of 1956 affected the haulage of fertilisers in particular, and retarded the normal peak traffic generally experienced just before the end of the financial year. Expenditure showed a considerable increase, not surprising in view of the wage and salary increases and the cost of improved working conditions granted during the year.

Locomotive Engineers' Summer Meeting

SOME 180 members and guests of the Institution of Locomotive Engineers attended the summer meeting at Buxton last week. During the meeting visits were paid

to the Vauxhall Works of Craven Bros. (Manchester) Ltd., Manchester, where members saw a variety of the company's range of machine tools, some of considerable dimensions and capacity, being produced, and to Taylor Bros. & Co. Ltd., Trafford Park Works, where the fully mechanised wheel forge producing over 60 wheels or disc centres per hr. attracted great interest. They also visited the works of two subsidiary companies of the English Steel Corporation Limited at Sheffield, concerned with the production of steel castings including automatic couplers and Commonwealth one-piece bogie castings, and laminated and coil springs. The Oil Engine Division and Aero Engine Development Centre of Rolls-Royce Limited, Derby, were also visited. An account of the meeting is given elsewhere in this issue.

Steel Bogie Castings

THE greater resistance to dynamic stresses of one-piece steel bogie castings compared with those built by conventional welded fabrication methods was mentioned by Dr. C. J. Dadswell, Managing Director of the company, on the occasion of the visit of the Institution of Locomotive Engineers to the works of the English Steel Castings Corporation. He pointed out that although it was difficult to simulate working conditions in a test laboratory, a properly engineered cast structure had greater rigidity for a given weight, better resistance to corrosion than a built-up unit, and indefinite length of life. Comparative laboratory tests show that two members at 90 deg. to each other in a casting have five times the fatigue life of a similar fabricated situation, and railway experience showed there was some truth in this statement. Dr. Dadswell admitted that castings were sometimes more expensive, but claimed that they remained trouble-free; in the 50,000 wagon bogie sideframes which his company had supplied, he had not heard of any breakdowns.

"Trans-Europe Expresses" Start to Run

THE high-speed international diesel trains with the collective name of "Trans-Europe Express" (T.E.E.) begin officially to run between certain major centres in Western and Central Europe on the introduction of the European summer passenger timetable this weekend. An impressive manifestation of the close co-operation which exists between the railways of Western Europe took place recently at the Gare de l'Est in Paris. The function was organised by the French National Railways on behalf of the railways participating in operating the new services (the T.E.E. Group), to give the Ministers of Transport of their respective countries the opportunity of inspecting five T.E.E. sets built by firms in France, Germany, Holland, Italy, and Switzerland. These are the new type which from June 2 will be used for the "Oiseau Bleu," the "Ile de France" and the "Etoile du Nord" between Paris, Brussels and Amsterdam; the "Paris-Ruhr" between Paris and Dortmund; the "Arbalète" between Paris and Zürich; the "Edelweiss" between Zürich, Luxembourg, Brussels, and Amsterdam; the "Mont Cenis" between Lyons and Milan; and, subsequently, the "Ligure" between Marseilles and Milan.

New Standard of First Class Travel

BESIDES the Ministers of Transport, there were present at the Gare de l'Est Monsieur Louis Armand, Chairman of the International Union of Railways and President of the S.N.C.F., Mr. F. Q. den Hollander, Chairman of the "Trans-Europe-Express" Group and General Manager of the Netherlands Railways, and General Managers of the railways of the T.E.E. Group. The new diesel sets, which are in a uniform livery of yellow and red, set new standards of comfort and speed in first class railway travel. The timings in several cases make possible a return trip in the same day, with ample time to transact business between outward and homeward journeys. The sets are

air-conditioned, soundproofed, lit by fluorescent tubes and individual lights placed under the baggage racks, and, as a result of a special type of suspension, are stated to have exceptional qualities of smooth riding at high speeds. They include a cloak-room compartment, toilets fitted with a plug point for electric razors, and a kitchen compartment from which meals are served to passengers at their seats. The passenger coaches are of the open type with three seats in a row, two on one side of the gangway and one on the other.

Expenditure on Public Transport

THE losses which may be suffered by a public transport undertaking when its users acquire private vehicles are examined by Mr. J. D. C. Churchill, Assistant Secretary, London Transport, in the course of an article in the April, 1957, issue of *British Transport Review*. The information he discusses is taken from "London Travel Survey 1954," a London Transport publication mentioned editorially in our issue of April 19 last. The expenditure on public transport in Greater London in 1954 by households in the £5-and-under income group was 7s. 4d., rising to 9s. 6d. for the £5-£10 per week group, 11s. 10d. for the £10-£20 group, and to 12s. 1d. for households with over £20 per week. The income in each case refers to the earnings of the head of the household only. Ownership of a motorcar reduced household expenditure on public transport by an average of 3s. 9d. a week, the figure tending to rise in step with income. The survey was carried out in winter, when some motorcars were not licensed, so that the true figure was probably at least 4s. a week. Ownership of a motorcycle, including motor scooters, mopeds, and so on, caused a fall of some 3s. a week. Possession of a television set caused a drop of 5d. a week, multiplied many times because of the large number of sets.

New E.D.A. Film

A NEW film, "New Light on Industry," has been produced by the British Electrical Development Association and is now available on free loan. Its theme stresses a need vital in every branch of activity—enough of the right light in the right place at all times. The action of the film takes place in the premises of several companies which have profited by the help and advice of the E.D.A. After a short interview with Viscount Chandos, D.S.O., M.C., President of the Association, the enquiring industrialist tours these premises and talks with members of the companies concerned, noting their reactions to the new systems installed and listening to descriptions of difficulties overcome. Stress has been laid on the increased production which has resulted in each case. An extremely important subject has been treated with a light and deft touch, and this latest effort of E.D.A. should prove a welcome addition to the Association's long list of titles already available. Running time is 30 minutes.

Punched Card Recording of Passenger Fares

THE Western Region of British Railways has devised a scheme whereby existing passenger fares records will be replaced by a library of punched cards. The Region is the first to adopt this method of recording passenger fares. Individual fares noted for each station will be punched into cards which will provide the necessary fields to record (a) destination station and Region, (b) route (indicated by a numerical code), (c) distance, in miles and chains, and (d) fare. With through fares which embrace any surcharge, toll, or portion due to any outside interest, each component will be recorded separately in addition to the total fare. It is claimed that, as a result, this phase of the work will be performed with greater efficiency and subsequent economy; as an example, when new fares books are required by ticket agencies or stations as replacements or as new issues, they can be produced at a speed of 4,000 entries an hour by using punched cards as against the present laborious method of reproduction by hand.

Decentralisation of Fares Quotation

COPIES of the fares lists of the larger and medium-size stations could be supplied to smaller booking points in their vicinity and on the line of route—a measure which is being considered by the Western Region. This would enable the smaller station to use the greater range of fares noted with the larger stations; and in turn should appreciably reduce the many applications for ordinary fares now received daily in the Fares Section at Regional headquarters. The new system has another outstanding advantage: after any adjustment in fares or component of a through fare, it will be possible, again by feeding the cards through an appropriate calculating machine, for the necessary adjustment in the fares to be made at a rate of over 4,000 cards an hour. Besides ordinary fares, it is intended similarly to include early morning return and season rates. The scheme has been produced by Mr. A. C. B. Pickford, Chief Commercial Manager of the Region in conjunction with the British Tabulating Machine Co. Ltd., and will be introduced very shortly, using the Hollerith equipment supplied by that firm.

Electrification Policy in the U.S.A.

THE large-scale conversion to diesel traction on railways in the U.S.A. during the last decade has not only reduced the number of steam locomotives in stock to 3,500, but has virtually put a stop to any electrification extensions and reduced the number of electric locomotives built to six to a dozen each year. Nevertheless, future electrification possibilities are being watched, first by the electrical section of the Association of American Railroads, and secondly by manufacturers; and the ideas of both have not been uninfluenced by the spread of 50-cycle single-phase traction in Europe. Although no section of railway seems to be under active consideration for electrification, any future conversion, other than an extension of an existing system, is likely to be on an industrial-frequency system, that is, it will be 60-cycle single-phase, in which the American industrial 60-cycle three-phase network can be utilised without the installation of costly conversion equipment before the traction energy is fed to the motive power. Despite an approach to unanimity in the U.S.A. as to system, viewpoints are not by any means the same as to the merits of industrial-frequency series-wound single-phase traction motors compared with those of the rectifier/d.c. traction motor combination.

New Headquarters for Locomotive Industry

SHORTLY after the last war the leading British locomotive building firms who were members of the then Locomotive Manufacturers' Association decided to erect a new office building which should house the offices of the Association, and the London offices of some of the major firms in the locomotive industry. A company, Locomotive House Limited, was formed, the shares being owned by the members of the Association. Land was bought in Buckingham Gate, Westminster, in a location both central, and convenient not only for the many visitors to London from railway administrations overseas, but for the many sub-contracting engineering firms whose offices are in this area. Work on the new building began in December, 1954, and the result is the efficiently designed, convenient, and handsome building briefly described on another page. Here Mr. Harold Wilmot, Chairman of Locomotive House Limited, and his co-directors, Mr. John Alcock, Mr. Gerald Collingwood, and Mr. T. A. Crowe, and, also as joint hosts, other representatives of the firms which share in the Locomotive House enterprise, last Tuesday entertained at a house-warming party many guests from the world of railways and the industries that supply them.

The names of British locomotive builders who have shares in the new building make an impressive list:

Bagnall; Andrew Barclay; Beyer, Peacock; Hudswell, Clarke; Hunslet; North British; Peckett; Robert Stephenson; Vulcan; and Yorkshire Engine. Some of these are tenants in Locomotive House. In addition, the Locomotive & Allied Manufacturers' Association has its offices on the premises. The L.A.M.A. was formed last year to widen the scope of the Locomotive Manufacturers' Association—dissolved later in the year—by including manufacturers of diesel and electric motive power who were not members of the L.M.A. Its President is Mr. Harold Wilmot, Chairman & Managing Director of Beyer, Peacock & Co. Ltd., and—indicative of the range of activities of the new Association—its Chairman Mr. C. C. H. Wade, who is Manager, Traction Sales & Contracts, the English Electric Co. Ltd. The L.A.M.A. meets, as occasion arises, in the Conference Room, but in the latter, as a reminder of the part played by the members of its predecessor association in creating Locomotive House—and indeed in creating and strengthening the locomotive industry—are displayed portraits of Presidents and other notable figures of the Locomotive Manufacturers' Association, with, in the centre, that of its first President (1875-89), Richard Peacock.

The advantages of such a centre for the locomotive and associated industries, with some major firms under the same roof, are obvious. It is right, too, that the centre should be worthily housed in a structure which shows what British architects and contractors can achieve. As can be seen from the description on page 634, nothing has been omitted to make performance of the tasks of those who work daily, or confer on occasions, in Locomotive House, or the conditions in which they work, as easy as possible; and advantage has been taken of the latest available techniques in structural engineering, heating, lighting, decorating, and furnishing.

The British locomotive industry is starting on a new period of strenuous activity in supplying British Railways with motive power as part of the modernisation plan, and in supplying existing, and in capturing new, markets in the many countries overseas where railways are being re-equipped with motive power, or extended, or improved. British locomotive builders are as sturdy individualists as most enterprising firms; but they realise the importance of conferring and collaborating on matters of common interest to the industry, as witness the foundation of their first Association over 80 years ago. In present conditions, when the problems facing the industry are aggregated by the complexity of international economic factors, the necessity to confer and to formulate common policies is greater than ever. The industry is to be congratulated on a well-equipped headquarters in which to deliberate and to decide on, and from which to conduct, concerted operations.

Passenger Transport in Ceylon

OBSERVATIONS on the problem of co-ordinating publicly-owned railway and bus transport pertinent to all railways, and more particularly to systems where, as in Ceylon, the train service is restricted by predominantly single-line railway layout, are made by Mr. L. C. Hawkins, a Member of London Transport Executive, in his report on public passenger transport in Ceylon. Earlier this year he spent two months in Ceylon on a United Kingdom mission, arranged under the Technical Co-operation Scheme of the Colombo Plan, to advise the Government of Ceylon on the setting up of a new public authority for omnibus services which the Government, in pursuance of its policy of nationalisation, had already decided to establish, and on the subsequent reorganisation of the public passenger transport system. The other members of the mission are two London Transport officers, Mr. R. G. Hills, Divisional Engineer, and Mr. H. F. Adcock, Divisional Operating Superintendent.

In the report presented to Mr. M. Senanayake, Minister of Transport & Works, Mr. Hawkins has advised the Ceylon authorities on the constitution and organisation of the new public transport authority, the Ceylon Transport

Board, which will take over more than 80 different bus companies and eventually run a fleet of 3,500 buses.

The mission was asked, *inter alia*, to express its views on the co-ordination of rail and road passenger traffic. Considerable numbers of local passengers, the report states, are carried by the Ceylon Government Railway, as well as passengers between towns in respect of which bus services are also provided. It is considered that the number of local passengers using the railways could be materially increased, particularly in the Greater Colombo area, if the frequency and speed of the services could be improved; on a similar basis, there is no doubt scope for increasing the volume of traffic carried on the railway services between towns. The C.G.R., however, is restricted to single-line working outside the Greater Colombo area, which restricts the frequency of the passenger service, particularly in the light of the demands of freight traffic. Colour-light signalling is to be installed in the Colombo area, and this, with other re-arrangements contemplated, should increase line capacity.

Time did not permit Mr. Hawkins and his colleagues to examine the railway situation in detail, or to try to measure the scope for carrying more passenger traffic, but, accepting that such a scope does exist, they have discussed the principles which should underlie a policy of "co-ordination." They maintain, rightly, that restriction is not necessarily co-ordination. Where excessive competitive services are provided by different traffic agencies, there is every reason to remove by restriction services not really required in relation to traffic offering. "But it is not co-ordination," the report states, "to compel the withdrawal of services which are convenient to the public simply in order to divert traffic compulsorily from one form of transport to another, and so boost the revenue of the latter. The governing consideration must be the public need." This does not mean that a conscious effort should not be made to divert traffic by persuasion from road to rail to the fullest extent to which the railway is or can be made capable of carrying it—an obvious way to relieve over-congested roads and avoid new expenditure on road improvement. But the diversion should be brought about by the relative convenience of the alternative services to the public, rather than by compulsion. Nor is the problem always the same throughout the whole of one long bus route. With unification, the opportunity will arise for the further development of limited stop inter-town bus services, for example, between Colombo and Kandy; between these terminal points there is real justification for such services, which can be run at a greater frequency than on the railway, and frequency of service can be just as great a time-saver to the passenger than speed. In addition, bus services should be arranged to act as feeder services to the railways, where the volume of traffic justifies it, and rail and road timetables should be co-ordinated so that time saved on one form of transport shall not be wasted by passengers having to wait for their connection.

Fares, the report recommends, should, to secure full co-ordination, be substantially the same on both forms of transport, for substantially similar journeys. The costs of providing the two types of service, however, will not be similar except by accident. Ideally, therefore, co-ordination should rest on a common financial pool between the otherwise competing forms of transport. Where such a pool exists, either through the common ownership of both forms of transport or through a pooling arrangement specially provided, the level of fares can be fixed so as to make the two forms of transport collectively remunerative. Each will then meet its own needs out of the common pool, and the size of the pool can be regulated, within limits, to meet the combined needs.

It might be suggested, the report adds, that because the railways are State-owned and the road services will be publicly owned through the Ceylon Transport Board, the need for financial pooling is lessened. This view, however, cannot be accepted without changing the underlying financial basis which is proposed for the Ceylon Transport Board. The deficit on the State-owned railways is made good out of taxation, while the Board is quite properly

required to be self-supporting out of its own revenue, without subsidy. It would be a retrograde step, inimical to the efficiency of road service operation, if the Board were placed in the same position as the railways and had access to a State subsidy. The mission considers the suggestion that the financial pool could be provided by allowing the C.G.R. to take over the operation of the road services on its own account, but expresses the view that "the operation of railway services, which extend to long-distance passenger traffic and a very heavy freight traffic, requires quite different skills and a different outlook from the operation of mainly local bus services, and the two will not easily mix. If their management were combined, one or the other would suffer, and the sufferer would probably be the road services." Most railway officers, we believe, must, at heart, agree with this opinion.

One way of achieving a common financial interest between separately owned rail and road services is to establish a pool of traffic receipts for similar traffics and, after deducting the variable costs of operation and maintenance incurred by each, to divide the net pool in pre-determined proportions between the two. Such a scheme, the report states, is workable, but can become complicated. The question is whether the need for co-ordination in the Greater Colombo area is so strong as to warrant the establishment of a financial pool between local traffic on the State railways and the traffic carried by the Ceylon Transport Board. The mission does not believe that it is, at present. There should be ample passenger traffic in Ceylon, with its growing population, for road and rail to take their own natural share on a basis of co-ordination and reasonably comparable fare scales, and to be self-supporting in the process. The report recommends, however, that when the Ceylon Transport Board has been established, the road and rail General Managers with, say, two of their chief officers on each side, should form a standing committee, under the chairmanship of each General Manager in turn, so as to effect co-ordination by discussion and agreement; any point of serious disagreement could be referred to the Minister of Transport & Works and the Chairman of the Ceylon Transport Board for settlement.

New Problems for the Civil Engineer

CIVIL engineering problems peculiar to all forms of electric and diesel—as opposed to steam—motive power have largely been solved in other countries, but in the United Kingdom experience so far has almost entirely been confined to the effects of multiple-unit traction. To be prepared for future developments involving widespread use of main line diesel and electric locomotives therefore, study of foreign experience is essential, though conditions there doubtless differ from ours.

It seems usual to consider the effects upon engineering structures and maintenance of these two forms of traction separately and not as common to both, as in an instance quoted below. The reason for this is not very obvious nor why there should be appreciable difference between the two effects, at any rate in this country. For in virtually all cases both are due to electrically-driven motor bogies whether in locomotives or multiple-unit stock. One would therefore expect that any differences experienced would depend on the design—and the motor suspension in particular—weight, and power of the bogie rather than on the primary power-unit, diesel or electric.

As an instance of the consideration of such diesel problems separately, we cannot do better than quote "Railway Diesel Traction & Associated Problems" in so far as it concerns the civil engineer. This is the title of Paper No. 6226 presented to the Institution of Civil Engineers for discussion on April 16, by Mr. A. B. Henderson, partner in the firm of Messrs. Livesey & Henderson. It describes the effects of diesel locomotive traction on bridges, tunnels, and permanent way.

In the U.S.A., where diesel motive power has almost entirely replaced steam traction, exhaustive tests of bridges have shown that a reduction in allowance for impact can

safely be accepted as compared with that necessary for steam locomotives. In general also, the load per unit length of bridge has been found to be less than with steam engines of the same tractive effort. Another point in favour of diesels is that their fumes appear to have less corrosive effect upon steelwork than steam exhaust, and in tunnels the lessened effects upon the lining and track are particularly marked. Reduction in risk of fire in timber trestles, decking, and other structures is also obvious.

So far Mr. Henderson's conclusions are all in unqualified favour of diesel traction as it affects the civil engineer. When he turns to track considerations, however, they are not quite so simple and favourable, though their problems also are soluble. One such solution is the re-design of the normal rail-section to give a larger radius to the curves connecting the head with the web, where electric nose-suspended motors have produced notably higher stresses resulting in many rail fractures.

He asserts that on straight track "every bogie is inclined to hunt to a lesser or greater degree, depending on its design." To resist the resulting lateral displacement of the track and maintain its alignment it is essential that ample boxing be provided each sleeper being fully shouldered. Under heavy traffic on steep gradients it has been found that lateral forces exerted on the rails by diesel locomotives at low speeds are, he says, "very high indeed." These conclusions are presumably based on experience with pivoted bogies fitted with nose-suspended electric motors; results obtained from some other types are reported to be much more favourable.

However, wear on the outer rails of sharp curves is another serious disadvantage of the diesel locomotive. In some cases this may be due to higher speeds, but the fact remains that measurements in the U.S.A. have shown extremely heavy wear on the inner face of the railhead amounting, it is stated, to as much as $\frac{1}{4}$ in. per month in some instances. A palliative for this trouble mentioned in the paper is the provision of or increase in the number of rail (or flange) lubricators. Most careful servicing and adequate allowance for summer and winter temperatures are essential after judicious siting, if necessary by trial and error; graphite grease is recommended. In Mr. Henderson's experience, the mileage between tyre-turning on one railway has been increased from 12,000 to 70,000 by the installation of rail lubricators on the sharper curves, an increase likely to be still further improved. Obviously, such tyre improvement will be reflected in a corresponding if not a directly-proportional increase in the lives of the rails concerned, but we believe that the most effective preventive of serious flange—and rail—wear is to be found in the design of the locomotive, electric or diesel, if not in the multiple-unit power bogies also.

Engineers in Pakistan

THE fourth Annual Convention of the Institute of Engineers (Pakistan) was held recently in Karachi under the presidency for the second year in succession of Mr. S. M. Hasan, Director-General of Railways, and in the presence of Mr. H. S. Suhrwady, the Prime Minister of Pakistan, who inaugurated the convention, and of a number of delegates from other countries present at one of these conventions for the first time. For increase in the membership of the Institute during the year from 527 to 780 and for other progress they were grateful, Mr. Hasan stated, to the Government for its encouragement. The outstanding assistance provided by the Government took the form of meeting the cost of the administration of the Institute and the construction of its new headquarters building in Dacca, now about half completed; their further aim was to have local headquarters buildings at Karachi, Lahore and Chittagong also. On the other hand, the Institute was still in an embarrassing position due to the delay in recognition by the Government of the diploma, awarded by the Institute, which included most of the senior engineers in the country.

Turning to scientific and technical education, Mr. Hasan reiterated the value of the Institute as stimulating research and disseminating information. However, he warned engineers that technical competence was not the sum total of professional responsibility and that integrity was equally important. Like similar institutions in other countries they would soon frame their own code of ethics; he quoted the code of the American Society of Civil Engineers in full.

He then urged his audience to evolve techniques and practices suited to the resources of and conditions obtaining in their own country, and not try slavishly to follow highly-developed western countries, where mechanisation was necessary because labour was so scarce and costly, where machines were manufactured locally, and where ample technicians were available to work and maintain them. On the contrary Pakistan needed employment for its vast population, was under-developed, had few technicians and workshops, and was short of foreign exchange. Design must therefore be adapted to use local materials such as bricks and stone to the exclusion largely of steelwork and reinforced concrete requiring imported steel and foreign exchange.

The most striking part of the address, however, was its frank analysis of the engineering profession in Pakistan, past, present and future, and its equally forthright appraisal regarding the number and quality of the engineers being trained in the country. According to the Federal Public Service Commission, an aggregate of 200 candidates appeared in the Central Engineering Services Examinations held during the period 1950-53 for the 130 posts advertised, and 109 qualified or about 54 per cent. But the reviews of the examiners made "pathetic reading," and the Commission hoped to fill all future vacancies without recommending any candidate who failed to get 40 per cent of the necessary marks, provided that certain conditions were fulfilled.

These were that training at engineering colleges could be improved, and that the various services—including the Pakistan Railways civil engineering, signals, stores, and electrical departments—offered more attractive prospects. Subsequent examiners' reports were not available, but in 1955, when there were 62 candidates for 47 vacancies only 4 qualified or 6½ per cent. The engineering profession in Pakistan was not attracting talented boys because there was a wide gap between the status, emoluments, prospects, and other conditions of the technical services and those of the Civil Service. Only action by the Government to improve these conditions could place Pakistan on the map of the technical and scientific world, but the Institute would assist in every way it could. Finally, Mr. Hasan criticised compulsory retirement of engineers at the age of 55, and asked the Government to help in setting up firms of consulting engineers in Pakistan.

Commonwealth of Australia Railways

THE report on the operations of Commonwealth Railways for the year ended June 30, 1956, has been sent to us by Mr. P. J. Hannaberry, Commonwealth Railway Commissioner. It shows that the financial results for the year were most satisfactory, and the best achieved in any peacetime year since Commonwealth Railways commenced operating. Gross revenue for the year, £4,740,904, exceeded working expenses by £1,565,058, an increase of 90.9 per cent over the surplus for the preceding year (£819,699). On the Trans-Australian Railway earnings totalled £2,744,776. Working expenditure amounted to £1,733,809, leaving an excess of revenue over working expenses of £1,010,967, an increase of 76.8 per cent over the surplus for the preceding year. Earnings in 1955-56 were greater by 38.35 per cent than in 1954-55; working expenses increased by 22.78 per cent, a result attributed to the economical working resulting from the operation with diesel-electric motive power, continued improvements in operating procedures, and the further success of efforts to gain additional freight and passenger traffic.

The result on the Central Australia Railway was also favourable. Revenue earned amounted to £1,852,406, an increase of 12 per cent, but working expenses totalled £1,216,167, a fall of £99,483, or 7.5 per cent, as compared with the previous year. The net result for 1955-56 was a surplus of revenue over working expenditure of £636,239, an increase of 87.5 per cent over the surplus in 1954-55. This result was also largely due to the use of diesel-electric power, improved methods of working, and the successful efforts to secure additional traffic.

As has been the case for many years, there was a loss in working the North Australia Railway. The revenue earned was £119,076, but working expenditure totalled £181,496, that is, £62,420 more than earnings. The loss on working in 1954-55 was £75,304. There was an increase in revenue in 1955-56 of £40,207, notwithstanding a prolonged interruption of traffic caused by floods, but working expenses increased by £27,323. Although the loss in working was heavy, the percentage of working expenses to revenue was reduced from 195.48 per cent to 152.42 per cent, despite increases in salaries and wages, disruption of traffic due to floods and washaways and cost of repairs to damaged track, and the cost of fuel oil and other materials. This improvement was due in great measure to the introduction of diesel-hydraulic rail cars for passenger and coaching services, in lieu of mixed trains, and the securing of additional traffic. The financial result on the Australian Capital Territory Railway in 1955-56 was less favourable than in the previous year, the loss in working being £19,728, as compared with £16,111 in 1954-55. Revenue earned amounted to £25,646, but working expenses rose to £44,374. The corresponding figures for 1954-55 were £23,003 and £39,114 respectively.

The normal express train services, on the basis of four trains in each direction weekly, except during the months of September and October, 1955, and during the Christmas, New Year, and Easter peak traffic periods, were continued on the T.A.R. A fifth train was run weekly in each direction during the two months mentioned, to meet anticipated extra traffic. The trains were well filled and their running was amply justified. The express services were mostly provided by the modern trains imported in 1952, but at peak periods and in emergency, it was neces-

sary to utilise older style cars, which have been renovated, and modernised, including the provision of air-conditioning. The demand for rail accommodation between the Eastern States and Western Australia has continued to increase, and it is certain that very soon it will be necessary to run five trains weekly, at least, in each direction, throughout the year. To this end additional new rolling stock has been obtained, and older cars are being converted to modern roomette cars in the Port Augusta workshops. Short distance passenger and coaching traffic between Port Pirie Junction, Port Augusta, Pimba, Woomera, and Tarcoola is catered for by frequent Budd diesel-hydraulic rail car services.

The weekly C.A.R. mixed train service between Port Augusta and Alice Springs was continued until the end of April, 1956, when, with the objective of catering for the growing tourist traffic and the needs of the Territory generally, the service was increased to two mixed trains weekly in each direction. Both trains have dining and sleeping cars attached. The mixed trains are worked by diesel-electric locomotives, and this method of operation, whilst enabling heavier loads to be hauled, also permitted reorganisation of the train schedules to reduce the times of the journeys.

Goods traffic on the C.A.R. has increased greatly, and is catered for by two regular goods trains to and from Alice Springs weekly, in addition to the utilisation of available space on the mixed trains, each of which is double-headed. The tonnage of through goods on the T.A.R. to and from Western Australia in 1955-56 increased by 34.8 per cent over the figures for 1954-55 and 82.7 per cent as compared with 1953-54. Traffic to the long-range weapons establishment at Woomera increased sharply, and the tonnage of materials to this centre was substantial. A very large proportion of the goods for this place is still carried by road, and attempts to obtain a greater share of the traffic have met with no success. There was a substantial increase in the goods traffic on the N.A.R. The railway also benefited from the carriage of a quantity of copper concentrates from Tennant Creek which was shipped overseas through Darwin. On the A.C.T.R. the tonnage and revenue earned from freight traffic were both slightly higher than in the previous year.

Heading	Year ended June 30	Trans-Australian Railway	Central Australia Railway	North Australia Railway	Aust. Cap. Territory Railway	Total for all Railways
1 Miles open for traffic	1955-56	1,108	771	316	5	2,201
2 Cost (excluding rolling stock)	1955	9,926,414	4,865,617	2,885,565	110,546	17,788,142
	1956	10,142,755	5,037,239	2,949,219	116,494	18,245,707
3 Cost per mile (excluding rolling stock)	1955	8,957	6,307	9,117	22,389	8,082
	1956	9,153	6,530	9,318	23,594	8,290
4 Cost of rolling stock	1955	5,509,933	2,108,784	509,547	*	8,128,264
	1956	5,692,926	2,186,847	543,254	*	8,423,027
5 Earnings	1955	1,983,949	1,654,928	78,869	23,003	3,740,749
	1956	2,744,776	1,852,406	119,076	24,646	4,740,904
6 Working expenses	1955	1,412,113	1,315,650	154,173	39,114	2,921,050
	1956	1,733,809	1,216,167	181,496	44,374	3,175,846
7 Productive train miles	1955	Miles 996,047	Miles 949,920	Miles 72,916	Miles 10,135	Miles 2,029,018
	1956	1,244,558	951,390	129,851	10,370	2,336,169
8 Earnings per train mile	1955	s. d. 39 10	s. d. 34 10	s. d. 21 7½	s. d. 45 4½	s. d. 36 10½
	1956	44 1½	38 11½	18 4	47 6½	40 7
9 Working expenses per train mile	1955	28 4½	27 8½	42 3½	77 2½	28 9½
	1956	27 10½	25 6½	27 11½	85 7	27 2½
10 Gross ton mileage	1955	Ton miles 627,875,339	Ton miles 364,365,944	Ton miles 11,890,962	Ton miles 2,506,266	Ton miles 1,006,638,511
	1956	770,919,031	469,962,775	16,395,372	2,312,095	1,259,589,273
11 Earnings per 1,000 gross ton miles	1955	Pence 758.34	Pence 1,090.06	Pence 1,591.84	Pence 2,202.77	Pence 891.86
	1956	854.50	945.98	1,743.07	2,558.30	903.32
12 Working expenses per 1,000 gross ton miles	1955	539.77	866.59	3,111.73	3,745.56	696.43
	1956	539.76	621.07	2,656.79	4,606.11	605.12
13 Results of working (excluding interest)	1955	£ +571,836	£ +339,278	£ -75,304	£ -16,111	£ +819,699
	1956	+1,010,967	+636,239	-62,420	-19,728	+1,565,058
14 Interest (including exchange)	1955	107,167	213,846	83,749	1,911	406,673
	1956	108,806	201,208	73,989	1,422	385,425

* The rolling stock is the property of the New South Wales Railways.

LETTERS TO THE EDITOR

(The Editor is not responsible for opinions of correspondents)

Route Maps in Carriages

May 21

SIR,—I refer to Mr. Ian Allan's letter in your May 17 issue. While heartily agreeing with his argument that a reversion to the old-time practice of displaying maps on compartment walls is to be desired, I cannot understand why such a move should necessitate the discontinuance of the innovation of labelling the wall panels with their respective countries of origin.

Surely the panels are large enough to hold the necessary maps without having to deprive the general public—not the "forester" who already is or ought to be fully acquainted with the species and its origin—of this instructive and fascinating information, on the provision of which in their new stock British Railways are certainly to be congratulated.

Yours faithfully,

B. G. MENELL

c/o Herne, Nordenskiöldsgatan 76, Itr.,
Stockholm

The Fuel Oil Tax

May 10

SIR,—If the duty on fuel oil were paid by all users equally, the Government would be under no obligation to use any of this money for road maintenance or new schemes. In claiming that the difference between the tax paid by road users and the amount spent on road maintenance is an unjust imposition, your correspondents in today's issue forget a number of points.

First, the owners of the roads (the nation), besides the users of the roads, are entitled to a profit. The railways pay out about £40 million a year in interest to stockholders, most of which represents capital sunk in the railway system as opposed to the vehicles. There should be a similar return to the nation on the capital sunk in the road system. Secondly, apart from actual road maintenance costs, the road user enjoys the use of lighting and signalling systems (police and robot lights), drainage, and fencing. The railways must fence their lines; the roads are fenced by the owners of the adjoining property.

Thirdly, the railways pay rates in all places where they operate a service, whereas road users (passenger as well as freight) only pay rates in those places where they actually own property. Indeed, for road passenger services, shelters and bus stations are frequently provided at municipal expense, while the railway provides its own stations with lighting, heating, and lavatories, and these premises then have local rates levied on them.

Yours faithfully,

R. G. R. CALVERT

45, Woodwaye, Oxhey, Watford

May 10

SIR,—Your correspondents in your issue of May 10 fail to realise that, whilst road and rail (and sea and air, too) each has a place in the transport system of a country, only rarely are conditions such that they can really compete; one, and one alone, is the correct choice in any given case. The public interest, in its widest sense, is served by an integrated (not necessarily nationalised) transport system; but that that should be achieved, so far as scheduled services are concerned, by licensing rather than by penal taxation, I agree.

So far as this country is concerned, the truth is that, to provide a good public service, the ordinary fare, second class rail or road, ought to be 3d. a mile, and taxation on fuel for private cars and so on high enough to make them uneconomic to operate with less than four passengers.

It is stupid to encourage to go by road the types of

traffic which ought to go by rail—or vice versa—and equally stupid to allow competition to reduce fares and rates to a level where the profit margin of both road and rail is inadequate.

Yours faithfully,

JOHN RODGERS

132, Worrin Road, Shenfield, Essex

Untidy Railway Premises

May 10

SIR,—Why do so many photographs and films of railway operation, equipment, tracks, marshalling yards, stations, railway workshops, and locomotive shed areas, show rubbish, ash, and loose ballast lying about? Surely the photographers concerned could use a little more discretion when taking or printing such shots; nothing looks worse.

Better still, why not start a campaign to have such places properly cleaned up and then to insist on having them kept that way? It is quite easy once the idea takes on. The British are the untidiest nation in Europe in this respect; they leave litter everywhere, and almost equal the Indians and Chinese in this respect. Compare them with the spotless Germans and Hollanders.

All railways in the Commonwealth and Empire could improve in this respect, and it is high time District Engineers and Superintendents, and all other officials in fact, insisted on real cleanliness (inside and outside), even in the locomotive shed areas.

I hope you will comment on the matter; but please don't bring in the question of labour costs as an excuse. The cause is laziness. Cleanliness and tidiness are a state of mind. Many railway officers and clerks also seem to need education in this respect, even concerning their own offices and the approaches thereto.

Yours faithfully,

NEW BROOM

Bulawayo

The Channel Tunnel

May 24

SIR,—There has been a strong revival of interest in the Channel Tunnel, backed it would seem by support for the shares of this almost defunct company, an interest, largely sponsored by genuine investors and not only by speculators.

British Railways and the French National Railways would do well to support the Channel Tunnel scheme both morally and financially, partly as a means of combating air transport and perhaps more important to look ahead to a European Customs union, whereby the trade between the British Isles and the Continent is bound to increase considerably. Before British Railways electrification to Dover via Ashford gets under way, they might do well to investigate a change to 25,000 V. to facilitate through running to and from the Continent, and the electrical working of freight trains.

Both British Railways and the S.N.C.F. seem prepared nowadays to embark on schemes of heavy capital expenditure, often on schemes unlikely to assist in production of higher revenue; but the Channel Tunnel would seem a scheme worth a real effort, and quickly.

In the same vein I think it is time British Railways really got on with the often talked-of scheme of a branch to London airport.

Yours faithfully,

J. B. LATHAM

18, Wheatsheaf Close, Woking

THE SCRAP HEAP

Railway-reared Redstarts

A pair of redstarts have built a nest on the undercarriage of a railway mail van which stands all day at Bamberg station and runs nightly to Schlesslitz and back. Now that eggs have been laid the railway authorities have decided to take the van out of service until they have been hatched.—From "The Manchester Guardian."

London to Scotland Without a Tunnel

Suggestions for a route from London to Scotland which does not involve going through a tunnel have included one via Peterborough, Sleaford, and Lincoln; and not long ago, when this matter was discussed in this and other journals, no objection was made. A correspondent now writes from near Lincoln that there is a tunnel only 55-yd. long and hewn through limestone, near Branston & Heighington on the Sleaford-Lincoln line; to avoid this, therefore, the route would have to be Peterborough-Boston-Lincoln.

Gotthard Railway Jubilee

On June 1, 1882, the Gotthard Railway was opened for traffic after inauguration festivities at Lucerne and Milan which started on May 23, 1882, and lasted for four days. The jubilee now being celebrated is of 75 years of operation, the railway having existed as an entity since December 6, 1871.

The first years of operation on the railway, with its major engineering works, including the nine-mile 562-yd. tunnel, gave results which exceeded all expectations. Sufficient means were soon available to lay double tracks, instead of the original single lines, on



The 10-centime stamp commemorating 75 years of the Gotthard Tunnel. The train is brown on a background of blue-green tones

the approaches to the Gotthard Tunnel, and to build the feeder lines between Zug and Arth-Goldau and from Lucerne to Immensee. These feeder lines, completing the system, were opened in 1897. On the southern side, the Monte Ceneri line between Belinzona and Lugano was finished in 1882. On nationalisation, the Gotthard Railway became, on January 1, 1909, part of the Swiss Federal Railways.

A special issue of stamps, illustrated on this page, has been made in connection with the jubilee celebrations.

Praise for S.A.R. & H.

An American tourist who travelled recently in a special train of the South African Railways up country from Capetown, in connection with the call at that port of ss. *Caronia* on a cruise, has praised S.A.R. service and catering.

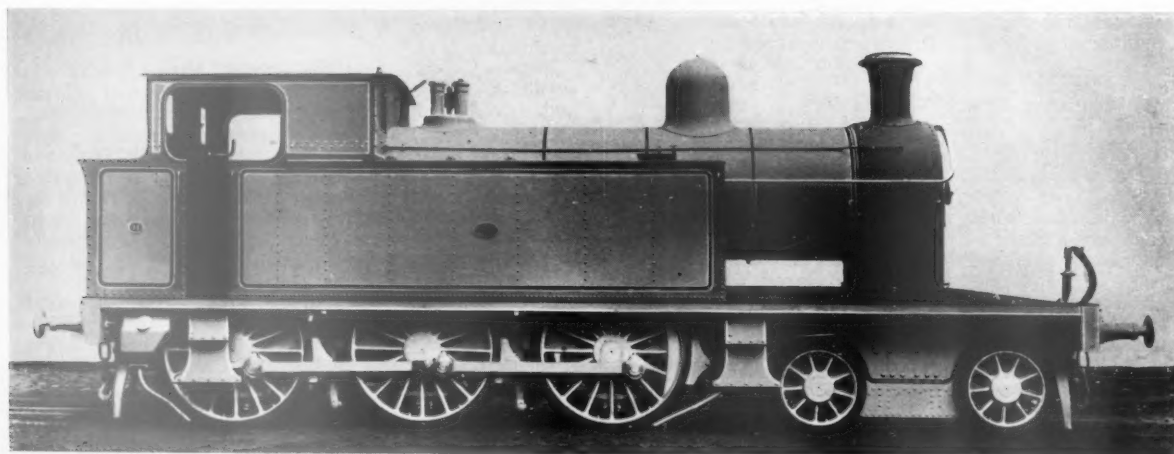
"Now that the trip is history," he wrote, "there is universal acclaim

aboard ship for the service extended, the comfort provided, and the most unusual courtesy and attention of the train personnel. There was just nothing left undone to make it an unforgettable experience. The food was superb—really excellent that found on ship. We have never experienced service like that accorded by the dining car stewards who, because of the exceptional heat and large list of passengers, laboured under very trying circumstances. An incident in point was when the writer carelessly dropped his cigarette lighter down the window space in his compartment. I casually mentioned the circumstances explaining that the lighter had no great value. . . . I was astounded to find at the very next train stop the railway had a carpenter on hand. He actually removed three outside panels of the car in a really troublesome and difficult effort and regained the lighter for me. I cannot think of any place in the world, including our U.S.A. where this could take place."—From "South African Railway News."

Service

A passenger tells us: "I was with two friends one morning in the Tonbridge refreshment rooms and ordered three cups of tea. Just then our train came in and it looked as if we would have to lose our tea. But the manageress was quick to see the difficulty and promptly tipped the tea into *papier mâché* cups for us to take on the train. I relate this small incident because it shows what good service is. I have heard other people say nice things about the refreshment room service at Tonbridge."—From "British Railways Magazine."

End of the Steam Era on the former C.B.S.C.R.



One of six tank engines built by Beyer, Peacock & Co. Ltd. in 1906 for the 5-ft. 3-in. gauge Cork Bandon & South Coast Railway (now part of Coras Iompair Eireann), and recently replaced by diesel traction on that line

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

INDIA

Conversions to Broad Gauge

A traffic survey is to be carried out for the conversion of Miraj-Kolhapur metre-line (of about 106 miles) to broad gauge. This is being investigated in conjunction with the proposed conversion of the Kurduwadi-Miraj narrow-gauge line to broad gauge, for which the survey is already in progress. The survey will be carried out by the Central Railway.

A reconnaissance engineering and traffic survey for the conversion of the 160-mile metre-gauge railway between Poona and Miraj, on the Southern Railway, to broad gauge has been approved by the Railway Board. The line capacity of the present Poona-Miraj section with the present heavy density of passenger and goods traffic, has reached the saturation point and it will be impossible to deal with the increased traffic during the second Five-Year Plan period unless the line is converted to broad gauge.

Classes in Suburban Trains

Second class accommodation is to be abolished in all steam-operated suburban trains in the Calcutta and Madras areas. There is, at present, no second class accommodation on the electrically-operated suburban services in the country.

This is the second step taken by the Railway Board towards the gradual elimination of second class accommodation on the Indian railways. The first step was taken with effect from July 1, 1956, when second class accommodation was withdrawn from about 80 branch lines.

VICTORIA

Packaging Code Welcomed

The Railways Department packaging code for transport of explosives and other dangerous goods is reported to have greatly impressed oil companies, Imperial Chemical Industries of Australia & New Zealand Limited, and other large firms.

After the matter was referred by the Victorian Railways Commissioners to the Australian & New Zealand Railways Conferences, it was decided by that body to appoint a committee of technical officers from New South Wales and the Victorian Railways to prepare a draft code for the transportation by rail of explosives and goods of a dangerous type. Working from a preliminary draft prepared by the Victorian Committee, this joint body produced a code based on international and Australian proven safe practices, thus assuring the attainment of domestic and overseas safety standards. The code was approved by the A.N.Z.R.

conferences and it was left for each system to implement the code to suit its own conditions.

In Victoria another committee, consisting of an officer from the staff of the Engineer of Tests and another from the Commercial Branch, was appointed to adapt the code to the State's requirements, keeping in mind the necessity for safe practice without introducing packaging conditions so onerous that traffic might be diverted to road transport. The work involved further careful checking of packaging and stowing methods and conferences with the producers of fibre-board and other containers.

In addition, packaging specifications were formulated for consignments acceptable by passenger train.

EAST AFRICA

Leyland Tank Lorries for Tanganyika

Large-capacity tank lorries introduced into Tanganyika by East African Railways & Harbours Administration have cut the distance over which imported motor fuels have to be carried from the port of Dar es Salaam to townships in the southern part of the country. They are Leyland Hippo heavy-duty vehicles with 2,500-gal. and 3,000-gal. tanks, and were introduced to open up a new route from the railway at Morogoro to Iringa, and thence along the established route to Mbeya, a total distance of over 500 miles. Fuels were previously loaded at the railway at Dodoma, some 200 miles further along the line than Morogoro and roughly the same distance from Iringa. Apart from the Leylands, the railway's present fleet is composed almost entirely of Albion vehicles and comprises over 180 units. The Administration owns 13 Albion 1,500-gal. tankers and 100 trucks of 5 to 10-ton capacity, and operates 68 Albion Victor buses.

UNITED STATES

Reducing New York Central Trackage

The immense programme of reducing trackage, on which the New York Central System already has begun work, and estimated to be complete by 1963, will cover a total of 2,434 route-miles. A total of 851 miles previously four-track and three-track, on the main line between New York and Chicago, is being reduced to double track; and 1,583 miles of double track, including such important main routes as those from Boston to Albany and Cleveland to St. Louis, are being reduced from double to single track.

An essential feature of all this work is the installation of C.T.C., of high-speed crossovers along the length of double-track lines and suitable sig-

nalling for either-way working on both tracks, and the provision of ample and lengthy loop tracks on all single lines, capable of being entered and left at speed, in order as far as possible to permit trains in opposite directions to cross one another without serious speed reduction. In addition 414 route-miles of existing single track are being equipped with C.T.C.

It is expected to recoup the cost of all this work in a relatively short time by the considerable reduction in track maintenance costs.

BRAZIL

Sorocabana Extension

The Sorocabana has begun laying rails on its extension from Presidente Prudente to Presidente Epitacio (215 km.). After crossing the Parana River it will continue into southern Mato Grosso, to Caiuas, Dourados and Ponta Pora, on the Paraguayan frontier. In both States it will serve rich agricultural zones, now suffering from inadequate transport facilities.

Paraguay and Brazil have declared Concepcion, on the Paraguay River, and Paranagua, on the Parana Coast, to be free ports for their imports and exports.

FRANCE

New Station at Arras

Monsieur Guy Mollet, then Prime Minister of France and deputy mayor of Arras, recently laid the first stone of the new station buildings at Arras, to replace buildings damaged during the war. Efforts are being made to conform to the architectural style of Northern France by the use of bricks offset by Artois stone. Two sides of the station building will be almost entirely constructed of large panes of glass.

WESTERN GERMANY

Welded Rails

The Federal Railway has proceeded during the past three years with the laying of welded rail. By January 1, 1957, about 300 miles of track had been laid with rails of 60-100 metres; about 1,600 miles with rails of over 120 metres, welded up to a length of 1,000 metres (3,281 ft.); and nearly 3,000 miles of track with rails welded together in lengths of more than 1,000 metres.

The Federal Railway management states that rail welding not only has brought about a considerable saving in track maintenance costs but has also improved riding on many intensively trafficked lines.

Production of Rails and Ancillary Equipment

*Manufacture at Workington of materials
for railways at home and overseas*



Loading rails for British Railways on to bolster wagons

THE plant of the Workington Iron & Steel Company, a branch of the United Steel Companies Limited, which, as recorded in our May 17 issue, was recently visited by representatives of the technical Press, is one of the largest in the world producing rails, chairs, fishplates and similar equipment.

During the past five years some £5,000,000 has been spent by the firm in the replacement of equipment, which has included the reconstruction and electrification of the rail rolling mill, the replacement and resiting of the re-rolling mill, a new apprentice school, and the inter-connection of the works electrical system with the national grid.

The installation is an integrated plant, using its own resources as far as possible, from raw materials to the finished product, ancillary products of one stage being used at a later stage. For instance, the company mines iron ore and limestone, and makes its own coke, used to smelt ore, and convert the molten iron in the Bessemer plant.

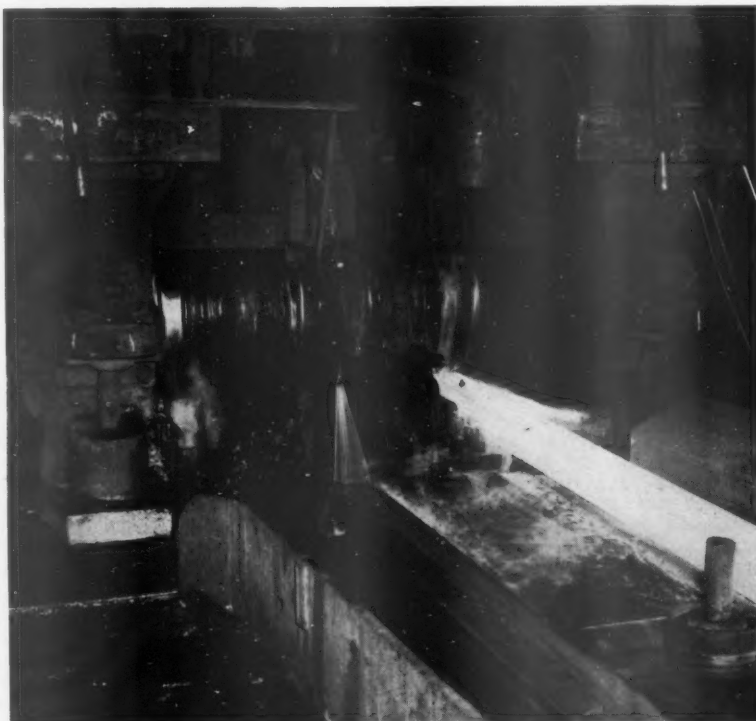
The steelmaking plant consists of two 25-ton acid Bessemer converters, and one 20-ton electric arc furnace; acid Bessemer steel represents the greater part of the production, some 6,000 tons of steel being made each week in the converters. The arc furnace is used to supplement the Bessemer plant, and also to make certain special high-

grade steels, especially high-quality rails. These two steelmaking processes enable the company to satisfy a wide range of requirements.

Bessemer Process

From the blast furnaces, the hot metal is transferred to a 400-ton mixer in the converter shop. The mixer acts both as a storage reservoir, and also irons out slight variations in iron composition from successive tapings of the blast furnaces, so that a uniform metal is fed into the converters. When the converter is ready for charging 25 tons of molten metal are drawn from the mixer. The metal is automatically weighed, and poured into the mouth of the converter. The air blast, supplied at a pressure of 25 lb. sq. in. is turned on, and the converter rotated into the vertical position.

When the Bessemer blow is completed, the converter is turned to the horizontal position and the air blast turned off; any necessary addition of molten spiegel are now made to the vessel. Steel is poured into a ladle to which alloy additions are made to adjust the final composition. The ladle is then teemed into ingot moulds, the largest weighing about 3½ tons. Tem-



Flat-bottom rails being rolled in the finishing stand

perature and speed of teeming is closely controlled as both factors have a physical influence on the condition of the steel ingot. Supplies of scrap are available within the plant in sufficient quantity to cover the requirements of the electric furnaces, so that its steel production is as free from tramp elements as the acid Bessemer steel.

Rail Mill

Ingots from the Bessemer and electric plants are first brought into the soaking pits, and are withdrawn as required and placed in the cogging mill approach rack and transferred to the 36-in. mill where it is reduced to the size suitable for the section being currently rolled, and cropped by electrically-operated shears; ends are returned to the Bessemer or electric furnace shops for remelting. The bloom then enters the 32-in. two-high reversing roughing mill stand driven by a 2,750-h.p. d.c. English Electric variable-speed reversing-motor. In this stand the bloom is converted to the intermediate shape required for the finished section, and after some six passes, is pushed across to the finishing stand.

The 28-in. finishing mill can be operated either as two-high reversing or three-high non-reversing, dependent on the section being rolled. To enable the bar to enter the upper rolling plane when rolling three-high, a hydraulically-operated lift is situated at the delivery side of the stand. The drive is supplied by a 2,500-h.p. d.c. English Electric variable-speed reversing-motor which, like the roughing mill motor, was recently installed. After rolling, bars are hot sawn or sheared to length.

Rails are hot straightened on the cooling banks and then taken to the pre-straightener-bay, while other sections are loaded to their respective finishing banks or plant. The range and sizes of the rail rolled are from 45 to 110 lb. per yd., fish and bearing plate bar, and sleeper plates from 11½ to 14-in. width, and billets and slabs from 40 to 145 lb. per yd., together with certain rail and sheet bar sections in high manganese steel. About 150,000 tons of rails are produced annually.

Fishplate Mill

The fishplate mill recently reconstructed by the Brightside Foundry & Engineering Co. Ltd. is a three-stand, three-high 18-in. mill, consisting of first roughing, second roughing, and finishing stands, driven by a 1,200-h.p. steam engine. Extensively modernised recently, the fishplate mill is equipped with a reheating furnace capable of 50 tons per hr. throughput for heating 2½–5-in. billets and blooms for a wide range of fishplate bar sections, bearing plates, spring bars, and so on. After rolling and hot sawing to length they are fed to cooling banks from which they go to the finishing departments. The mill output is approximately 11,400 tons per year.

The rail finishing plant consists of a 50 in. roller straightening machine, and four rail drilling and ending machines. In the rail finishing plant rails are straightened, inspected, cut to length, and drilled in two pairs of Clifton & Baird special purpose machines. Rails then pass outside for customers' inspection in the loading bay, those for British railways are loaded direct on to bolster wagons for immediate despatch, and those for overseas railways are transferred to Workington Dock by the company's own railway.

Although in terms of tonnage, rail production is by far the most important activity, other permanent way materials are manufactured on a substantial scale. Steel sleepers are rolled either flat or trough-shaped depending on the type to be manufactured. After

ferred to the processing department where the first operation is shearing to correct length. Punching or notching and straightening of the fishplates are carried out on double-sided machines, set in line in an extension of the reciprocating hearth of the reheating furnace; where required, holes are drilled in a multi-spindle special-purpose machine.

Bearing Plates

The production flow for bearing plates can be similar to that for fishplates. It often follows, however, that bearing plates are processed in the cold condition, eliminating the reheating stage. In such cases the bearing plate bar is sheared and punched at one stroke in a 500-ton electrically-operated machine; cold straightening, if required,



Simultaneous drilling and milling of rail in a Clifton & Baird special purpose machine

cooling they are transferred to the sleeper plant where they are cut to the required length. Plates pass on a conveyor through a heating furnace attaining a surface temperature of 850 to 900°C. Holes for the rail fastening are punched under a hydraulically-operated press, followed immediately by pressing to shape, also in a hydraulically-operated press.

Travelling along an open-air bench, sleepers are cooled and any surface scale is removed by wire brushes. This is done to ensure a good adhesion of the protective coating which is applied when the sleepers reach the dipping shed, where they are dipped in rust-preventive medium. Inspection and gauging are then undertaken. The output of the plant is between 25,000 and 30,000 tons of sleepers annually.

Fishplate bars, produced in either the rail or fishplate mill, are trans-

ferred immediately in a 150-ton hydraulic press. After inspection, bundles of fishplates, and bearing plates are dipped in a suitable preservative. Some 10,000 tons are produced annually. The total output in ingots is reckoned to be about 280,000 tons annually, of which 35 per cent of finished products, such as rails, fishplates, and so on, are exported.

Training Scheme

To provide the necessary training the company built and equipped an apprentice centre, known as the Bessemer Memorial School, which was opened by the Queen in October last year; it also commemorates both the centenary of Sir Henry Bessemer's invention and also the present company's predecessor, the Workington Hematite Iron Company, Limited. Although primarily designed for apprentice training, the



Fishplate holes being drilled on an Archdale multiple-spindle drill

school has lecture rooms and other facilities suitable for the instruction of operators, foremen, and both junior and middle management.

The school is well equipped, and the ground floor contains a gymnasium, a common room, an instructor's room, and so on. On the first floor there are

two lecture rooms and projectors, in addition to a conference room and library. Intended for the exclusive use of apprentices, the general workshop is equipped with various machines, together with welding bays and an electrical section which includes a large demonstration panel. The number

receiving basic training is up to a maximum of 45.

A feature of the school is that it is designed with the dual purpose of being instructional as well as functional. All services such as heating, water, and electrical services can be clearly identified, while all services in the boiler house are painted in accordance with British Standards.

Economy in Production

The integration of the various processes carried out is a material factor in the economy of production since not only are the fuel and power requirements of the works met from the coal originally charged into coke ovens, but there is actually a surplus of coke oven gas sufficient to supply the domestic and industrial needs of a considerable area of West Cumberland.

Furthermore, large volumes of combustible gases are obtained from the coke ovens and the blast furnaces which are utilised as fuel for the generation of steam, and also for various metallurgical processes. From these sources come all the fuel requirements of the works, except for a small quantity of coal required for mobile equipment, such as locomotives, and cranes.

The coking plant contains 64 Woodall-Duckham Becker compound regenerative ovens, in two batteries, with a total throughput of 10,000 tons of coal per week. The first battery of 53 ovens came into service in 1936, and it is planned to replace this battery by a similar battery of 53 ovens in 1957.

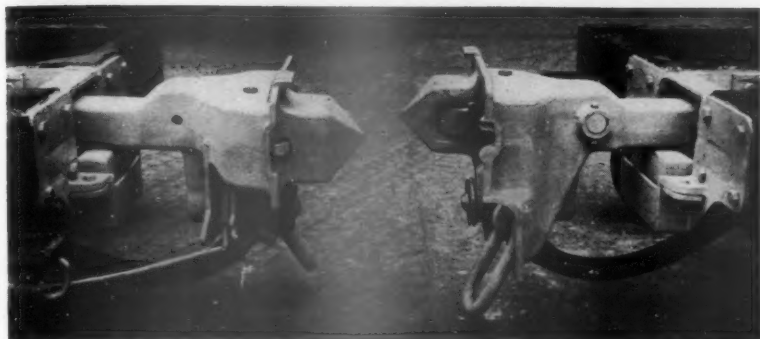
Diesel Working on the Canadian National Railways



The "Super Continental" of the Canadian National Railways, which runs between Montreal and Toronto and Vancouver, in Fraser Canyon, near Hope, British Columbia

Prototype Automatic Coupler for British Railways

Incorporating automatic connection of train brake pipe



View of coupler heads separated, showing locking surfaces

ON view for the first time, at the Grimesthorpe Works of the English Steel Castings Corporation Limited, on the occasion of the official visit of the Institution of Locomotive Engineers last week, as described elsewhere in this issue, was the prototype A.S.F./V automatic coupler which has been produced by the company to the requirements of British Railways. These requirements have been drawn up to cover the equipment which will be necessary in view of the decision to improve freight train speeds in this country.

The unit, designed and produced by the company, is one of the first to be equipped with either an automatic vacuum or air connector. In the design of the coupler, allowance has been made for fitting either type of brake system, but in view of British Railways decision in favour of vacuum braking, the present units have this form of brake pipe connection.

As a pair of couplers run together to connect for buff and draw, they

also automatically and simultaneously make the vacuum brake connection, the vacuum connector cartridge being supplied by Gresham & Craven Limited.

The present prototype of the coupler is designed to take a drawbar pull of 40,000 lb. but it will be tested with a load of 140 tons giving a safety

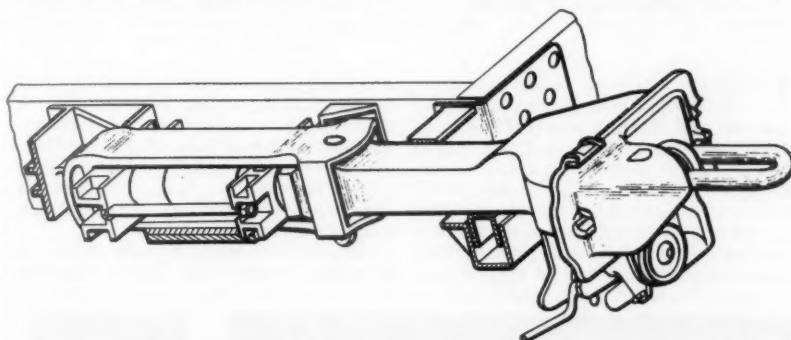
factor of approximately eight to one. An oleo-pneumatic draft gear capsule is fitted. This has an absorption capacity of 270 in.-ton with a 3-in. travel. The manufacturer intends eventually to increase this capacity to 600 in.-ton with a 5-in. travel. It is also possible, however, to fit friction, spring or rubber drawgear as alternatives to the oleo-pneumatic arrangement if required.

Gathering Height

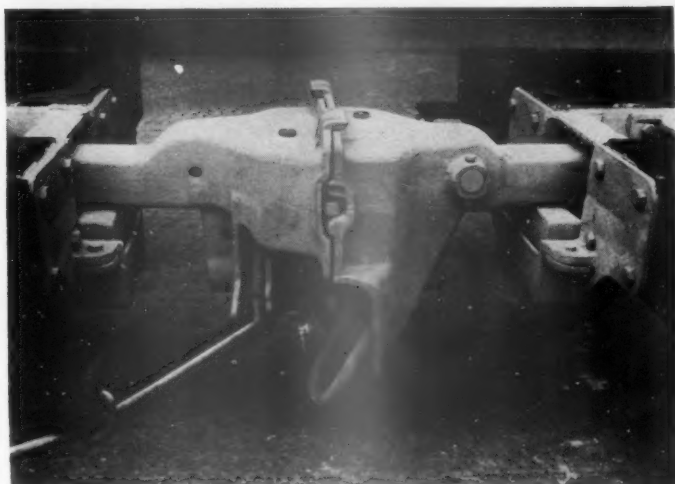
One requirement which has been fulfilled in the design of the coupler is that the vertical gathering height on the coupling should be up to 5 in. If this dimension were reduced the coupler head could also be made more compact. The minimum slack between mated couplers is $\frac{1}{4}$ in. and the coupler with its attachment castings weighs some 8 cwt.

The unit incorporates a transition device on one side of the mating sur-

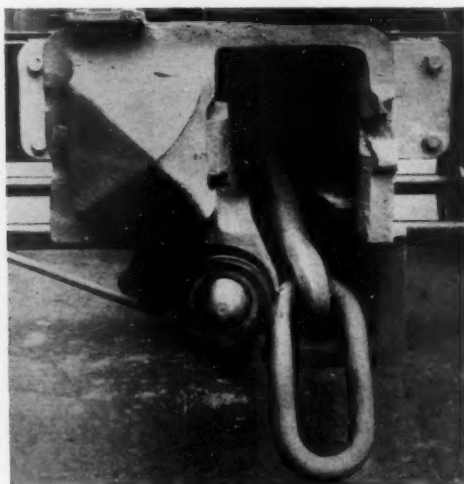
(Continued on page 628)



Cut-away diagram of coupler showing hydraulic draft gear capsule



Coupler heads seen in locked position



Head, showing vacuum connector

Cold Cathode Fluorescent Lighting of Stations and Depots

Installations in the Eastern and North Eastern Regions



Overlite open platform lighting fittings at the new station at Potters Bar, Eastern Region

IN January, 1953, the Chief Mechanical & Electrical Engineer of the Eastern and North Eastern Regions of British Railways, Mr. K. J. Cook, began to experiment with use of cold cathode fluorescent lighting for stations. The main reason for this research was the question of cost of lumen hours for various forms of lighting, taking into consideration all aspects of cost; it was

also felt that the general standard of station lighting could be improved by introducing this method of lighting. The decision was then made that Fenchurch Street Station should be the subject of experiment. A short account of the measures taken was given in our issue of February 12, 1954.

The life of cold cathode tubes is between 15,000 and 20,000 burning

hours. The low surface brightness of the tubing avoids risk of glare and the long fittings give an even light distribution. Cold cathode lighting starts up immediately without any auxiliary starting gear and there are no filaments to burn out. It is free from stroboscopic effects and it is possible to use a dimmer with satisfactory results. General reliability and low maintenance cost are also claimed.

Lighting at a terminus can be divided into three types of fittings: (a) for the general concourse areas; (b) for the under-canopy platform lighting; and (c) for the open platform areas.

Lighting at Fenchurch Street

A fitting developed for the concourse lighting at Fenchurch Street was a Perspex-enclosed globe measuring 3 ft. across and divided horizontally into two portions. Inside this bowl all the tubing, transformers, and wiring were contained. The experimental fitting was erected at about 25 ft. above the platform area and proved quite satisfactory. The two half-bowls made of Perspex were held together by pressure and a specially designed rim to exclude dust, but at the same time making it simple to remove the lower half for maintenance purposes.

A number of these fittings were erected throughout the concourse area, and were immediately a success in that they provided an even illumination over the whole of the area, not only on the ground, but also on the advertisements on the walls around. In addition a certain amount of upward light made



Hilite fittings, with lower half redesigned with stepped effect, at York, North Eastern Region



Trilite fittings under platform canopies at York, showing high degree of illumination obtained



Specially designed fitting, in conjunction with panel ceiling, at the new Kings Cross Road Motor Depot, Eastern Region

sure that the tunnel effect which can be accentuated by a solid downward reflector was avoided, and a feeling of space well lit was satisfactorily achieved.

The units for the platform under-canopy lighting were designed to have the name of the station on an 8-ft. long fitting which also provided a considerable amount of information. It was found that when it was required to change tubes or deal with any part of the lighting unit, the Perspex cover had to be removed by undoing metal thread screws, which in due course became slightly rusty and were difficult to remove. It was also found that the lettering, which was 4-in. high, came down too near to the curve on the Perspex cover, and because of variations in temperature, there was a tendency for the Perspex to crack, and it became evident that the Perspex enclosure would have to be completely sealed to exclude dirt.

The body of the open platform lighting unit was designed to be entirely of Perspex mounted on a concrete pillar. Access to the tubes was through removable panels at either end, and again the name of the station was shown in black Perspex lettering.

These light fittings, known as Overlites, were designed to the requirements of the Architect of the Eastern Region, Mr. H. H. Powell, who was responsible for the new Potters Bar Station, one of the first to be equipped with these units; here also the booking hall has two lighting troughs of contemporary design. As shown in the illustration, the Overlite is erected with the body of the unit at right angles to the direction of travel. The name of the station is thus more readily seen by passengers in approaching trains.

As a result of the experience at Fenchurch Street, and later on the Cambridge, and Southend lines, an entirely

new 8-ft. long fitting was designed and named the Trilite with a view to obviating the difficulties experienced with the original Fenchurch Street fittings. The unit had a simplified metal body with a Perspex enclosure screwed to the body with the electrodes covered by a sliding metal cover. The intention was that the electrode covers could be removed and tubes changed without disturbing the Perspex and so ensuring that as little dust as possible would enter the fitting.

It was found, however, difficult to ensure a complete seal between the metal cover and the Perspex, because of the wide tolerance limit of the Perspex,

with the result that at certain times of the year small flies found their way into the fitting and apparently bred in considerable quantities.

Although a large number of these fittings were used for stations in various areas, it was obvious that a further improvement was necessary. Modifications have now been embodied which provide for the reduction of metal parts and employ a Perspex trough which is readily removable. The Perspex is held in position by quick acting spring fasteners, which draw the material on to a suitable rubber gasket, so ensuring a really dust tight enclosure all round the joint of the Perspex to the metal body. Interlock devices which employ micro-gap switches were part of the design to ensure complete safety from shock when maintenance engineers remove the cover.

Installation at York

This fitting, known as the Trilite II, is used for all the covered platform areas at York which has recently been converted from gas to cold cathode fluorescent lighting. The concourse areas of York Station are lit by means of the Hilite fitting as installed at Fenchurch Street, but in this instance the lower half of the fitting was redesigned with a stepped effect in order to break up the rather plain design of the original fitting.

The installations at York are reported to afford good general lighting throughout the whole of the area. Passengers can now read timetables and newspapers anywhere in the public part of the station after dark. The average illumination value required was 5 lumens per sq. ft. in the main concourse areas, and 2 lumens per sq. ft. at the platform edges in the passenger train bays.

The elimination of colour distortion



Trilite fittings for general lighting in Temple Mills wagon works, Eastern Region

requires the use of a suitable fluorescent lighting medium. The employment of the white light at a colour temperature of 3,500° Kelvin avoids distortion and results in an appreciable production of daylight.

Other ideas employing cold cathode fluorescent lighting are being developed for use in waiting rooms and booking halls. Besides station lighting, the Tri-lite fitting with a plain Perspex enclosure has also been used for lighting carriage sheds and diesel sheds with considerable success.

Kings Cross Road Motor Depot

Another application of this form of lighting is in the new Road Motor Depot at Kings Cross. The architect designed a series of barrel ceilings, and

cold cathode fluorescent tubing is fitted direct on to the concrete with the electrodes protruding through the concrete: these are connected to transformers on the outside of the building. High illumination is obtained at floor level and the simple lines of light give very effective results. Illumination in the pits is provided by standard pit lighting units fitted into the walls. These are for hot cathode fluorescent lamps and are quite successful for giving an even and useful light to the underside of the motor chassis for repair work.

Durability

Because of the special conditions obtaining in railway stations care must be taken that all parts of lighting fittings withstand atmospheric corrosion and

temperature variation. Fittings must also be robust enough to stand rough handling.

A very rigid specification is laid down for transformer and capacitor design. Metalwork must be able to stand up to exacting conditions. The Perspex enclosures must be anti-statisised and sprayed with D.D.T. to discourage the breeding of flies and moths inside the unit.

Transformer design is specially important, to maintain a high level of illumination throughout the long life of 15,000 burning hours, and to remain stable through varying changes of input and output conditions. To be certain of this quality a specification has been drawn up in excess of the British Standard requirement.

British-Built Diesel-Electric Locomotives in New Zealand



Wellington-Woodville freight train, hauled by two English Electric 750-h.p. diesel-electric locomotives, descending the 1 in 70 gradient from the Rimutaka Tunnel towards Featherston, on the recently opened Rimutaka deviation

Prototype Automatic Coupler

(Concluded from page 625)

faces, so that it can be coupled to existing wagons fitted with standard drawbar hooks. The reason for the coupling surfaces being designed as they have, rather than using the more conventional knuckle coupler, is because it is necessary to have an interlocking coupler to align the vacuum connections. A knuckle type of interlocking coupler, however, would not have suf-

ficient vertical gathering range as required by the specification.

The general appearance of the new unit and its design features may be seen from the cut-away drawing and photographic illustrations on page 625. The coupler has been the subject of patents with the English Steel Castings Corporation Limited and Gresham & Craven Limited, the latter firm having collaborated in the design. In the case of the design of the air brake version, the Westinghouse Brake & Signal Co.

Ltd. was consulted. This present design is the second version to be supplied to British Railways.

The first prototype supplied last year complied with most of the original specification and was capable of connecting wagons with 4½-in. difference in buffer height. This second prototype has, as previously stated, a greater range of buffer height and incorporates the hydraulic draft gear as an alternative to the rubber gear fitted to the first unit.

RAILWAY NEWS SECTION

PERSONAL

On May 27, Mr. Ralph J. Cordiner, President of the General Electric Company, U.S.A., was entertained at a cocktail party given in his honour at Claridges Hotel by the London Directors of the International General Electric Company of New York.

Mr. C. W. Reeves, Accounts Officer, Finance Department, British Road Services

At the annual general meeting of the Transportation Club held on May 27, the Council was re-constituted. In place of the previous council of 18, the following were elected by vote of members:—

Major-General G. S. Szlumper (Chairman); Messrs. F. L. Castle, C. M. Cock, B. W. C. Cooke, R. Gresley, D. H. Handover, S. G. Hearn, S. H. James, E. J. Morris, J. B. Thom, A. J. Webb, and H. Wilmot (Members).

Mr. P. H. D. Ryder has been appointed Managing Director of Thomas Tilling Limited in succession to Mr. J. A. Falconer, who is retiring.

Professor Dr. H. M. Oeftering has been appointed Chairman of the Board of Directorate of the German Federal Railway. Dr. Karl Koch and Dipl. Ing. Hans Geitmann have been appointed Members of the Board of Directorate.



Mr. C. W. Reeves
Appointed Chief Financial Officer,
British Road Services



Mr. E. S. Cox
Elected President, Institution of
Locomotive Engineers, 1957-58

Headquarters, who, as recorded in our May 24 issue, has been appointed Chief Financial Officer, B.R.S., served until 1941 with Messrs. Smallfield, Rawlins, Lindsay Fynn & Company, Chartered Accountants. He joined the Ministry of War Transport in 1941 in charge of the Internal Audit Section (Meat Pool), later becoming Investigating Accountant in the Ministry's road haulage organisation. In 1947 he was established as a Senior Accountant in the Professional Accountant class. He left the Civil Service in 1948 to join British Road Services Headquarters as Assistant Accountant and became Accounts Officer in 1950. Since 1955, he has acted as deputy to the Chief Financial Officer. Mr. Reeves is an Associate of the Society of Incorporated Accountants & Auditors.

Mr. F. L. Hick, Assistant to the General Manager (General), North Eastern Region, British Railways, has been appointed Assistant Operating Officer, North Eastern Region, York.

Colonel S. H. Bingham, formerly Executive Director & General Manager of the New York City Transit Authority, who, on retirement in 1956, went into private consulting engineering practice in New York, has been elected to membership of the Association of Consulting Engineers of Great Britain.

Mr. R. L. P. Cobb has been appointed Stores Superintendent, Southern Region, British Railways, succeeding Mr. J. W. Terry, who is retiring.

British Railways, Western Region, announce the appointment of Mr. G. E. R. Penney as Assistant to the Chief Operating Superintendent (Research).

Mr. A. W. J. Dymond, Joint Assistant to the Chief Mechanical and Electrical and Carriage & Wagon Engineers, Western Region, British Railways, has been appointed Stores Superintendent, Western Region, in succession to Mr. R. B. Hoff.

Mr. E. S. Cox, M.I.Mech.E., M.I.Loco.E., Mechanical Engineer (Development), British Railways Central Staff, B.T.C., whose nomination as President of the Institution of Locomotive Engineers was recorded in our December 28 issue, will take office tomorrow, June 1. Mr. Cox, who was educated at Merchant Taylors' School, Crosby, received his engineering training at the Horwich Works of the former Lancashire & Yorkshire Railway and served for a while in the Drawing Office of that works. In 1927, following the formation of the L.M.S.R., he was placed in charge of the Dynamometer Car at Derby, and, in 1931, he moved to Euston as Technical Assistant. In 1935 he returned to Derby as Assistant Locomotive Works Superintendent, in 1938 he became Personal & Technical Assistant to the Chief Mechanical Engineer, and, in 1941, was appointed Chief Technical Assistant. On nationalisation Mr. Cox was appointed Executive Officer (Design), in which capacity he dealt with both locomotive and carriage and wagon work under the



Mr. P. Armstrong

Appointed Assistant Regional Establishment & Staff Officer, Western Region



Mr. F. G. Crabb

Appointed Commercial Officer (Headquarters), Eastern Region



Mr. A. M. Stimpson

Appointed Works Assistant to General Manager, Eastern Region

Railway Executive Member for Mechanical & Electrical Engineering. In 1955 he assumed his present position—Mechanical Engineer (Development), British Railways Central Staff, B.T.C.—in which capacity he acts as deputy to the Chief Mechanical Engineer. Mr. Cox holds the George Stephenson Research Medal of the Institution of Mechanical Engineers and the Gold Medal of the Institution of Locomotive Engineers, of which body he was a Vice-President until his election this year as President. He is a Lt.-Colonel in the Engineer & Railway Staff Corps and a member of the Control Committee of the I.U.R. Office of Research & Experiments. He visited India with the Pacific Locomotive Committee in 1938 and was a member of a party sent by the L.M.S. and L.N.E. Railways to the U.S.A. in 1945 to report on motive power development.

Mr. Pearson Armstrong, who has been appointed Assistant Regional Establishment & Staff Officer, Western Region, British Railways, was educated at Leith Academy, Edinburgh, and entered the Secretary's Office of the North British Railway at Edinburgh in 1921. In 1923 he was transferred to the personal staff of the Divisional General Manager, Scottish Area, London & North Eastern Railway, Edinburgh. In 1938 Mr. Armstrong was appointed to the joint staff office of the District Operating Superintendent, District Goods & Passenger Manager and District Locomotive Running Superintendent, Edinburgh, as Wages Staff Questions Clerk. He returned to the Divisional General Manager's Office, Edinburgh, in 1940 on salaried and wages staff matters. He moved to the North Eastern Area of the L.N.E.R. in 1941 on appointment to the headquarters joint staff office of the Operating Passenger Commercial, Goods Commercial and Locomotive Running Departments at York where he became Head of the Docks and Locomotive Shed and Shops Staff Section. He returned to the Scottish Area in 1943 as Head of the Locomotive Staff Section in the joint staff office of the Operating Superintendent, Passenger Manager and Locomotive Running Superintendent. In 1945 he was appointed Deputy Staff Assistant, and, in 1946, became Staff Assistant to the Operat-

ing Superintendent, Passenger Manager & Locomotive Running Superintendent, Scottish Area. On nationalisation, Mr. Armstrong transferred to the headquarters of the Scottish Region at Glasgow as Staff Assistant to the Operating Superintendent and the Motive Power Superintendent, where he was closely associated with the staff re-organisations arising from the fusion of the former L.N.E.R. and L.M.S.R. staffing arrangements in Scotland. During this period he served on the Management sides of L.N.E.R. Sectional Councils Nos. 1, 2, 3 and 4 and L.M.S.R. Sectional Councils Nos. 2, 3 and 4. On the formation of the Scottish Region Sectional Councils he became Chairman of the Sub-Committees of Sectional Council No. 3, a position he had held on L.N.E.R. Sectional Council No. 3. In 1951 he was appointed Assistant (Wages Staff), Regional Staff Office, Western Region, Paddington, the position he now vacates.

Mr. F. G. Crabb, who, as recorded in our March 8 issue, has been appointed Commercial Officer (Headquarters), Eastern Region, Liverpool Street, British Railways, began his career with the former Great Northern Railway as a junior clerk at Kings Cross Goods in September, 1913. During the 1914-18 war he served with the Honourable Artillery Company from January, 1917, until October, 1919, and, on his return to railway service, obtained experience at various stations and in district commercial offices. He was appointed Chief Clerk, Tottenham, in January, 1936, and was promoted to the Goods Manager's Office, L.N.E.R., London, in March, 1937. In 1945 Mr. Crabb was appointed Chief Claims Clerk, Goods Manager's Office, in which capacity he was responsible for the introduction of new claims prevention methods and a reorganisation of the claims and unclaimed goods organisations. He remained in this position until December, 1946, when he became Deputy Chief Assistant, Goods Rates & Charges, in the same office, and was ultimately appointed on July 6, 1953, to be Assistant to Commercial Superintendent, Freight Rates & Charges (Eastern Region). During his occupancy of that position he was also a member of the Freight Charges Advisory panel appointed to consider the new Merchandise Charges

scheme. In April, 1956, Mr. Crabb was appointed Assistant Commercial Manager (Acting), Eastern Region. This month he was appointed Commercial Manager (Acting). He will assume his new duties as Commercial Officer (Headquarters) later this year.

Mr. A. E. Megson, Works Assistant to the General Manager, Eastern Region, British Railways, has retired after almost 47 years of railway service. Mr. Megson was born in May, 1892, at Hale, Cheshire, and was educated at Manchester Grammar School, where he was a Foundation Scholar. He entered the service of the Great Central Railway in August, 1910, as a booking clerk at Brooklands on the Manchester, South Junction & Altrincham Railway and, in 1911, was transferred to the Staff Office of the District Superintendent at Manchester (London Road). In 1913 he obtained, by competitive examination, a Higher Grade Clerkship involving a five years' course of training in all branches of railway service. This course was cut short by the outbreak of the 1914-18 war, during which Mr. Megson served with the Royal Fusiliers, Middlesex Regiment and Royal Engineers (Signals). He resumed railway duty in 1919 and completed his Higher Grade Course. In 1921, he was transferred to the Mineral Manager's Office, Chesterfield, and in 1924 moved to the Works Section, Chief General Manager's Office, L.N.E.R., where he eventually became Section Head. In 1942 he was appointed Works Assistant to the Divisional General Manager, Southern Area, L.N.E.R., in which capacity he served under the Chief Regional Officer, and, finally, the General Manager, Eastern Region.

Mr. A. M. Stimpson, Senior Assistant (General), General Manager's Office, Liverpool Street, Eastern Region, British Railways, who has been appointed Works Assistant, to the General Manager, Eastern Region took up his new duties on May 13, 1957. Mr. Stimpson, who was educated at Tynemouth High School, began his railway career in 1925 at Northumberland Dock, North Eastern Area, L.N.E.R. After experience at a number of stations in Northumberland and Durham he secured a Traffic Appren-

ticeship in 1931. In 1935 he was appointed to the Superintendent's Office, Southern Area (Western Section), L.N.E.R., Liverpool Street, to take control of pooling matters. In 1938 he took charge of the General & Accidents Sections, Superintendent's Office (Eastern & Western Sections), Southern Area, L.N.E.R., which position he held until 1946. During this period he also acted as Secretary to the L.N.E.R. Superintendents' Committee and Superintendents' & Passenger Managers' Joint Committee in 1938, 1939 and 1942, and to the L.N.E.R. Superintendents' Committee in 1946. In 1946 he was appointed Clerk-in-Charge, New Works Section, Superintendent's Office, Southern Area, L.N.E.R. (subsequently Operating Superintendent's Office, Eastern Region). In January, 1949, he became Second Assistant (General) in the office of the Chief Regional Officer, Eastern Region, Liverpool Street, and, in December, 1951, Senior Assistant (General), the position he now vacates.

Mr. Brian Bromwich has been appointed Chief Press Officer of the General Electric Co. Ltd., in succession to Mr. D. C. Rogerson, who becomes Deputy Publicity Manager (Engineering).

Mr. M. H. Hammill, Director & General Manager of Foster Transformers Limited, since 1950, has been appointed Managing Director of that company. Before joining the Foster Company—which is one of the Lancashire Dynamo Group—he was associated for many years with the industrial consultants, Urwick Orr & Partners.

Viscount Chandos has been re-appointed President of the British Electrical Development Association. Sir Josiah Eccles, Deputy Chairman (Operation), Central Electricity Authority, and Mr. Victor W. Dale, former Director & Secretary of E.D.A., were appointed Vice-Presidents, and Lord Beveridge and Captain J. M. Donaldson were re-appointed Vice-Presidents. Mr. W. S. Lewis, Chairman, Midlands Electricity Board, has been elected Chairman for the year 1957-58, and Mr. W. N. C. Clinch, Controller, Eastern Division, Central Electricity Authority, has been elected Vice-Chairman.

Mr. F. C. Howard, M.B.E., recently retired after 44 years of service as Principal Assistant to the General Manager, London Midland Region, British Railways. Mr. Howard began his railway career with the former L. & N.W. in 1913 and received his early training in the Goods Department of that system. During the latter part of the 1914-18 war he served with the Royal Engineers, returning to the Goods Department of the L. & N.W. in 1919. In 1924 he was transferred to the General Manager's Office, and in 1941, became Chief Clerk in the President's Office. On nationalisation he was appointed an Assistant to the Chief Regional Officer, a position subsequently re-designated Assistant (General). This title he retained in the offices of the Chief Regional Manager and of the General Manager. Since 1951 he has been the London Midland Region Liaison Officer with the British Transport Commission's Archivist & Curator of Historical Relics.

At a retirement ceremony, three former chiefs of the Region together with Mr. David Blee, present General Manager, were present. The photograph on this page shows (left to right) top row: Mr. G. L. Darbyshire, Mr. J. W. Watkins, Sir John Elliot, lower row: Mr. Howard and Mr. David Blee. Chief Officers, retired officers and staff of the General Manager's office

presented to Mr. Howard a television set as a mark of their appreciation.

Mr. Edward A. Simmonds has joined the board of Toledo Woodhead Springs Limited as Sales Director.

Mr. Robert S. Ewing has been appointed Director in Charge of Production for C.A.V. Limited.

We regret to record the death, on May 21, of Mr. Bernard T. Wingfield, Chairman & Managing Director, of the Drayton Regulator & Instrument Co. Ltd.

Miss Joyce Allaby, of Frames Tours Limited, has won the 1957 award of the Institution of Traffic Administration with her paper "Continental Rail Travel."

Mr. J. T. Holman has been appointed a director of Climax Rock Drill & Engineering Works Limited. Mr. J. H. Crawford has resigned from the board of the company.

Colonel P. St. John Cox has joined the executive sales staff of the Rawlings Manufacturing Co. Ltd. He will work directly in conjunction with Mr. D. H. Bryan Duffield, the Company's Sales Director.

Mr. C. E. R. Millidge and Mr. A. A. Barr have been appointed to the board of C. C. Wakefield & Co. Ltd. in conjunction with their present offices of Manager, Castrol Division and Group Publicity Manager respectively.

We regret to record the death on April 16, at the age of 76, of Mr. Thomas Thomson, formerly Chief Engineer at the Appleby-Frodingham Works, Scunthorpe, and later Director & Chief Engineer of H. A. Brassert & Co. Ltd.

Thos. Cook & Son Ltd. announce three new traffic positions to take effect on July 1. These are: Mr. H. J. Thompson, Manager for Inclusive Traffic, as Inclusive Traffic Manager. Mr. Thompson will delegate certain of his responsibilities to the Superintendent of Inclusive Traffic Departments,

Mr. R. F. H. Manning, Manager, Holiday Tours Department, since March last year, and Mr. J. Wadkin, Assistant Manager for Inclusive Travel becomes Assistant Superintendent of Inclusive Traffic Departments. Mr. A. V. Cowell, Manager, Air Travel Department, succeeds Mr. Manning as Manager of the Holiday Tours Department and Mr. L. G. Duncan becomes Manager of the Air Travel Department.

We regret to record the death on May 26, at the age of 90, of Sir Alfred Herbert, K.B.E., a leading figure in industry for more than half a century and a former President of the Machine Tool Trades Association. While a young man he created his own company at Coventry, Alfred Herbert Limited, in which he still took an active interest in his ninetieth year.

The following Centre Officers of the Institute of Traffic Administration have been elected:—

Merseyside

Mr. T. H. Carey (Chairman); Mr. W. Antonia (Vice-Chairman); Mr. C. H. Keen (Hon. Treasurer); Mr. W. Antonia (National Council representative).

Preston

Mr. W. Lindley (Chairman); Mr. J. Williams (Vice-Chairman); Mr. J. Williams (Hon. Secretary); Mr. C. Griffin (Hon. Treasurer); Mr. J. Thompson (National Council representative); Miss H. Hindle (Librarian).

London

Mr. A. T. Hills (Chairman); Mr. G. R. Banks (Deputy Chairman); Messrs. D. J. Hicks, J. W. Brett (Vice-Chairman); Mr. N. T. R. White (Hon. Secretary); Mr. E. Ellis (Hon. Treasurer); Mr. J. W. Brett (National Council representative); Mr. G. Hawksworth (Press Officer).

Manchester

Mr. A. C. Bond (Chairman); Mr. J. A. Broster (Vice-Chairman); Mr. S. Smith (Hon. Secretary); Mrs. M. Wagster (Hon. Treasurer); Mr. A. Cusick (National Council representative); Mr. F. Booth (Education Officer); Mr. S. G. Watson (Public Relations Officer).



Mr. David Blee, General Manager of the London Midland Region, together with Mr. G. L. Darbyshire, Mr. J. W. Watkins, and Sir John Elliot at a ceremony for Mr. F. C. Howard, retiring after 44 years of service (see text)

NEW EQUIPMENT AND PROCESSES

Rail-Mounted Earth Auger Machine

A MACHINE to dig holes mechanically for telegraph poles and signals has been developed by the Plant Section of the Signal Engineer's Department, British Railways, Western Region.

The unit is based on a rail-mounted four-wheel chassis frame with central king post about which the superstructure is permitted to turn through 180 deg. The superstructure consists of an engine compartment and cab with a projecting boom structure carrying the cutting head and hydraulic rams. The rear of the chassis contains a derrick for lifting poles or similar items into the holes. When travelling from site to site the derrick is carried on the deck of the main chassis and the boom is lowered on to a ramp formation on an attendant match truck to comply with the limitations of the structure gauge.

Power is provided by a 50-b.h.p. diesel unit which powers the plate auger through enclosed roller chains and bevel gears. A 20-kW., 110-V. generator is driven from the engine by endless vee belts and supplies current for a transmission motor and lighting to enable operations to take place during the hours of darkness.

Feed and lift for the auger head and raising and lowering the boom are achieved by hydraulic rams, and slewing of the superstructure and winching for the derrick are provided by eccentric vane type hydraulic motors. Hydraulic pressure is provided by two gear-type hydraulic pumps. All controls including the auger-drive engagement and the self-propulsion controller are housed in the cab; the machine is capable of speeds up to 15 m.p.h.

Holes can be dug at a maximum of 18 ft. 6 in. from centre of track and various sizes of auger are available for holes from 20 in. to 33 in. dia. The maximum depth to which the auger can go is about 7 ft. 3 in.—varying slightly according to the terrain. When the boom

is at right-angles to the track—the maximum distance—the adjacent track is not fouled by the counterbalance arrangements.

The earth auger machine was manufactured by the Auto-Mower Engineering Co. Ltd., Norton St. Philip, Nr. Bath, which is prepared to build similar equipment to other railway managements' requirements.

Range of Fractional h.p. Motors

G.E.C. fractional horsepower induction motors, of $\frac{1}{4}$ h.p. and 1 h.p. capacity, in single-phase capacitor and three-phase versions, have been developed. The motors are smaller, lighter and of more modern

66 of BS.2048/1953, and are therefore mechanically interchangeable with other a.c. and d.c. motors complying with this specification. With the exception of flange-mounted motors, they are also interchangeable with American motors of similar rating made to American N.E.M.A. Fractional Horsepower Motor Standard MGI-1955, for general purpose motors.

Similar frames of the totally enclosed type are also being produced, while the G.E.C. range of direct current fractional horsepower motors have been redesigned to conform to BS.2048/1953, and are thus interchangeable with alternating current motors made to this specification.

The price of the $\frac{1}{4}$ -h.p. and 1-h.p. motors with frame 66, and information as to delivery, can be obtained on application to the manufacturer, the General Electric Co. Ltd., Magnet House, Kingsway, W.C.2.



Mobile Crane

THE KL 10-10 mobile crane, now going into production, has a wide range of applications which include stores handling, track laying, constructional work and general handling duties for railway goods yards.

The 10-ton crane uses a single heavy-duty diesel engine to drive all the crane motions, as well as provide power for road travel. Additionally, the crane has been designed for operation by one driver with all the controls grouped within the large cab, which, together with the mechanisms for hoist, derrick, and slew units, is mounted on the crane chassis.

Drives throughout the crane mechanism are mechanical; road speeds up to 30 m.p.h. are obtained from the 125-b.h.p. Leyland engine, which drives through a large-diameter plate clutch and five-speed gearbox to either four or six road wheels. For crane operation, engagement of the power take-off permits the hoist, derrick, slew and travel motions to be controlled at various speeds.

The take-off is of the full power type and the engine speed is controlled by a

appearance than their predecessors, though of equivalent rating and performance and are suitable for general workshop purposes, machinery drives and so on.

Continuously rated and complying with BS.170/1939, they are drip-proof, foot-mounted and available with sleeve or ball bearings, or flange-mounted with ball bearings. The motors are constructed to the dimensions of frame





pedal, or may be preset with a self-locking hand-lever.

The chassis is of rigidly-braced welded construction, with one-piece members extending the full length of the crane. Heavy duty pneumatic tyres are fitted all round, and two spare wheels and tyres are standard equipment. Four extending outrigger beams are incorporated in the chassis, each beam being fitted with a screw jack, for increased stability.

Air brakes are fitted to all wheels, hydraulic power-assisted steering is incorporated. Various lengths of jib of two basic designs, cantilever and strut-type, are available, together with alternative electro-magnets and hook-on self-dumping grabs. The crane is able to climb 1 in 6 gradients without load and to negotiate gradients up to 1 in 14 with full load.

Further details, including price and delivery, may be obtained from the manufacturer, K & L Steelfounders & Engineers, Limited, Letchworth, Herts.

Two-Pedal Control Fork Lift Truck

AN addition to the Stacatruc range is the Model 624D, with a maximum capacity of 7,000 lb. at 18-in. centres, incorporating two-pedal control, and available on either pneumatic or cushion tyres. The truck is powered by a B.M.C. 3.4 litre diesel engine.

One feature of the machine is the manufacturers' constant mesh gearbox transmission system known as Stacamatic Drive, which is semi-automatic in operation to help reduce driver-fatigue and improve performance. This uses a constant mesh gearbox with two forward and one reverse gear in which each gear ratio has its own oil-immersed disc-clutch hydraulically and, to a large extent, automatically operated.

Twelve hydraulic pistons control the clutch engagement, and oil under pressure for the pistons is supplied by a gear pump mounted on the gearbox and driven by the input shaft. Movement of the steering column selector lever from neutral to any of the three gear positions closes the drain outlet and opens the selected clutch pistons to supply, automatically building up the pressure in the system.

As the throttle is opened, a metering valve increases the oil pressure up to a maximum of 200 lb. per sq. in. on the chosen clutch plate, thus transmitting the increased power.

The steer axle is centre pivoted, the pivot bearings consist of large-diameter rubber bushes which are sufficiently resilient to provide adequate up and down movement characteristics, but which nevertheless introduce a measure of torsional rigidity to the axle to improve lateral stability. When pneumatic tyres are used powered steering is available if required. The mast construction is conventional, but the lifting ram has been specially designed to give a large amount of free-lift without resorting to the double-stage ram normally associated with this feature. The mast generally is of robust construction and is operated by specially designed and produced Lockheed hydraulic gear.

Leading dimensions of the Model 624D include length, less forks, 93 in.; overall width, pneumatic tyres, 57 in.; cushion tyres, 44 in.; outer turning radius, 87 in. The unladen weight of the machine is 9,910 lb. Forward speeds up to 10 m.p.h. are obtainable.

Details of price and delivery may be obtained from the manufacturer, I. T. D. Limited, 95, Ladbroke Grove, London, W.11.

Improved Fire Extinguisher

THE ability to control the fire extinguisher and handle with one hand, distinguishes the latest Pyrene product. The pressurised extinguisher which is of the vaporising liquid type, is suitable for guards' vans and similar locations. A feature is a squeeze-grip release valve allowing one-hand operation, providing control of the discharge of fire fighting liquid.

Other features are a locking device which provides added security against accidental discharge and vibration, and a small pressure gauge for checking the container pressure, which also simplifies the process of recharging.

The extinguisher is supplied charged



with one quart of either Pyrene fire extinguisher liquid or Chlorobromomethane. Both are special liquids which form a heavy, dry, cohering blanket of vapour immediately they reach a temperature of 200° F. or more. These liquids do not damage materials or mechanism and are effective against all small petrol, paraffin, or alcohol fires, or those involving electrical apparatus.

The unit is operated by pulling back the locking slide and squeezing the handle, releasing a powerful jet. It is designed to operate when held at an upward or downward angle, and the jet is stopped immediately the handle is released. The extinguisher may be recharged on the spot by re-filling with the liquid and pressuring from a compressed air line.

Delivery can be made from stock; price details may be obtained from the manufacturer, the Pyrene Co. Ltd., 9, Grosvenor Gardens, London, S.W.1.



New Headquarters for British Locomotive Industry

Inauguration of Locomotive House, Westminster

A cocktail party was held at Locomotive House, Buckingham Gate, London, S.W.1, on May 28 as a house-warming for the new headquarters building. The joint hosts were the Chairman of Locomotive House Limited, Mr. Harold Wilmot, and the directors, Messrs. John Alcock, Gerald Collingwood, and T. A. Crowe, and the representatives of the firms who have shares in Locomotive House Limited. The list of these firms and their representatives is as follows:—

W. G. Bagnall Limited: Messrs. W. A. Smyth, Managing Director, and H. Davies, Director;

Andrew Barclay, Sons & Co. Ltd.: Messrs. H. Kewney, Managing Director, S. E. H. Kewney, Director & General Manager, and F. H. Morfe, London Representative;

Beyer, Peacock & Co. Ltd.: Messrs. H. Wilmot, Chairman & Managing Director, L. T. Dawes, Commercial Director, J. Hadfield, Technical Director, and M. A. Crane, Technical Sales Manager;

Hudswell, Clarke & Co. Ltd.: Messrs. G. W. C. Birdsell, Director, and A. F. Walters, London Manager;

The Hunslet Engine Co. Ltd.: Messrs. J. F. Alcock, Chairman & Managing Director, C. R. Clayton Fryers, Director & General Manager, and F. Theakston, Director;

North British Locomotive Co. Ltd.: Messrs. T. A. Crowe, Chairman & Chief Managing Director, R. Arbuthnott, Joint Managing Director, W. D. Lorimer, Joint Managing Director, G. T. Owen, Director & General Manager, and G. Williams, London Manager; Peckett & Sons, Ltd.: Mr. W. T. Peckett, Director;

Robert Stephenson & Hawthorns Limited: Messrs. G. Collingwood, Chairman, G. Rigby, Managing Director, and W. Watson, London Representative;

The Vulcan Foundry Limited: Messrs. G. Collingwood, Managing Director, V. S. Mullen, Assistant General Manager—Commercial, and W. L. Topham, London & Overseas Representative;

Yorkshire Engine Co. Ltd.: Messrs. E. R. S. Watkin, Director & General Manager, and H. A. A. While, London Representative.

Those who accepted invitations included:—

Messrs. A. W. Abbott, L. B. Alexander, Ian Allan, Sir Hugh Beaver, Messrs. J. H. Brebner, J. H. Cansdale, C. M. Cock, B. W. C. Cooke, E. S. Cox, S. R. Devlin,

Messrs. H. N. Edwards, L. G. Ford, R. E. Fordham, C. R. Gibson, A. H. Greenham, G. T. Hart, R. F. Harvey, C. F. Hawkins, A. B. Henderson, C. P. Hopkins,

Sir Norman Kipping, Mr. K. C. Khosla,

Sir Roger Makins, Messrs. F. A. Manley, R. F. Marriott, I. T. Morrow, O. S. Naylor, Sir George Nelson,

Messrs. H. E. Osborn, B. W. Pendred, J. Ratter, F. B. Roberts, Sir Brian Robertson, Lord Rusholme,

Messrs. H. Sampson, E. W. Senior, C. E. R. Sherrington, Colonel J. R. Simpson, Major-General G. S. Szlumper, Messrs. D. Taylor, C. L. Trask, J. S. Tritton, J. F. B. Vidal.

Messrs. C. C. H. Wade, W. J. Wakley, J. W. Watkins, Sir Bruce White, Messrs. J. P. Winder and F. H. Wood.

Description of Premises

The design and specification of the building were drafted in outline by the board of Locomotive House Limited, with the general idea that even though first cost might be slightly higher the cost and inconvenience of repairs and maintenance should be cut to the minimum.

The building is steel and reinforced concrete framed with brick panel walls. The floors are of hollow pot bricks and reinforced concrete and are fire-resisting. Window frames are bronze with double thickness and cavity ply-glass glazing, to secure the maximum sound and heat insulation. Office floors throughout are in Rhodesian teak.



The Conference Room, showing the portraits of Richard Peacock (centre) and other notable figures of the L.M.A.

The entrance hall is paved with Sicilian Arni Alto marble with a surround of Portuguese Napoleon marble. The walls in the entrance hall and on the main stairs and lift landings are faced with Italian Perle marble. Main stairs and landings are paved with terrazzo.

Central heating by hot water is provided by two oil-fired sectional boilers, and radiators are concealed in ceiling panels surrounding the light panels.

Hot water to basins and so on is provided from calorifiers from the same boilers supplemented by electric immersion heaters. Hot air is induced, extracted and thermostatically controlled in the conference room and reception room. The circulation from the boilers is controlled by a motorised valve which opens and closes according to the temperature on the roof of the building.

The office lighting throughout is by cold cathode tubes with an anticipated life of 20,000 hr. combined with corrugated plastic covers to form a luminated ceiling. The entrance hall and conference room are lit by cold cathode tubes concealed in troughs.

The building is panelled throughout, a wide range of timbers being used and the name and source of each is shown over the light switch in each room. An individual log has been used in each room so that continuity of grain has been secured. In the offices the veneers have been flat cut, but in the corridors the white ash has been rotary cut.

The lifts are by Waygood Otis and are fully automatic or attendant operated; they travel at 380 ft. per min. The furniture has been designed to achieve the maximum of standardisation while maintaining an individual appearance; bookcases, hat and coat cupboards, etc., are all close-fitted to walls and floors and are designed so as to provide dust-free easily cleaned and hygienic accommodation. The filing cabinets are fire and dust proof Chubb Record Protection type and Chubb standard safe units are incorporated in pairs in certain of the fitted cupboard units. All this furniture and office equipment is supplied and fitted as

an integral part of the accommodation. Locomotive House is provided with its own stock of cutlery, glass, etc., and the kitchen on the fifth floor provides means of serving snacks, or plating-up of more substantial meals. The fifth floor is also provided with cinema equipment and 60 stacking chairs.

There are three dressing rooms complete with showers and other amenities.

The conference room on the first floor

is fully furnished with tables and chairs for 40 people, as well as matching blotters, pads, pencils, etc. In the adjoining ante-room there are hat and coat racks for the same number of people. Both the conference room and the fifth floor reception room are available for letting.

The architects were Messrs. E. A. Stone, Toms & Partners, 28, South Audley Street, W.1.

Institution of Locomotive Engineers Summer Meeting

Visits to manufacturers of wheels and axles, castings and springs, diesel engines, and heavy machine tools

The Summer Meeting of the Institution of Locomotive Engineers, which was attended by some 180 members and guests, was held on May 20-23. The main party met at Buxton on the evening of May 20, being accommodated at the Palace Hotel.

The following morning, one of two parties visited the Trafford Park Works of Taylor Bros. & Co. Ltd., Manchester, the other, the Vauxhall Works of Craven Bros. (Manchester) Ltd., Reddish.

The former works specialises in railway wheels, tyres and axles, and the second in the manufacture of heavy machinery including equipment for railway workshops, such as wheel and tyre boring lathes.

Rotary Hearth Furnace

One feature of Taylor Bros. Works is the fully mechanised wheel forge which can produce over 60 wheels or disc centres per hr. In this plant, which was fully described in our issue of December 5, 1952, an oil-fired rotary hearth furnace 69 ft. in dia. heats the blocks to the required temperature controlled by electronic controllers, and they are then conveyed by loading mechanism, first to an 8,500-ton forging press, then to a 1,000-ton punching press, then to the wheel rolling mill followed by the 2,000-ton dishing press.

Members were entertained at the Mid-

land Hotel, Manchester, jointly by the Directors of Taylor Bros. & Co. Ltd. and Craven Bros. (Manchester) Ltd. In the afternoon the members again divided, each party visiting the works seen previously by the other.

Summer Meeting Dinner

The summer meeting dinner was held at the Palace Hotel, Buxton, on May 21, when members and guests were received by the President, Mr. J. F. B. Vidal. The guests included: Dr. C. J. Dadswell, Managing Director, English Steel Castings Corporation; Mr. C. H. Dunt, Assistant Managing Director of Taylor Bros. & Co. Ltd., representing Mr. R. G. H. Taylor, Managing Director; Mr. J. R. Greenwood, Managing Director of Craven Bros. (Manchester) Ltd.; Dr. F. L. Smith, Managing Director, Rolls-Royce Limited; Mr. J. B. Bennett, Director, Taylor Bros. & Co. Ltd.; Mr. W. Lord, Director, Craven Bros. (Manchester) Ltd.; Mr. C. Muirhead, Director, English Steel Corporation Limited, and Mr. W. A. Robotham, Managing Director, Rolls-Royce Limited. Each of the first four guests spoke briefly of the pleasure they felt in having the members of the Institution visit their works.

Manufacture of Steel Castings

On May 22, the party went by road to Sheffield, where they visited the Grimes-



Institution of Locomotive Engineers Summer Meeting: The President and members (left) inspecting the English Steel Castings prototype auto-coupler, and (right) viewing the rolling of wheels from the main control room at Taylor Bros. & Co. Ltd.

thorpe Foundry of the English Steel Castings Corporation Limited, which is one of the largest in Europe, producing a wide variety of steel castings, a quarter of which are devoted to the manufacture of railway products including Commonwealth one-piece bogie castings, wagon bogie components and locomotive driving wheels.

On view, for the first time, was a prototype automatic coupler which has been designed to British Railways requirements for proposed new freight stock. This coupler provides for drawbar auto-couplings as well as a vacuum brake pipe connection. Further reference is made to the coupler on page 625 of this issue.

Laminated and Coil Springs

This was followed by a visit to the plant of the English Steel Spring Corporation Limited, where the production of laminated and coil springs for railway applications was seen.

At the end of the tour, the meeting was conveyed to Sheffield where the members were entertained to luncheon by the Directors of the English Steel Corporation Limited at the Royal Victoria Hotel. In a speech of welcome to the members and guests, Dr. C. J. Dadsell, spoke of the £1 million scheme which the company

is pursuing for a new spring plant. He said he believed that there will be a decline in the demand for laminated springs for rail purposes, and possibly also automotive, but an increased demand for coil springs for railways. He considered that present trials which his company's American associates were carrying out might encourage the use of pneumatic springs in this country.

He also spoke of the increasing application of steel castings for rolling stock, wagon, and one-piece bogies and components and of the £150,000 moulding bay which is being installed in view of the demand.

After luncheon members visited Chatsworth House, returning in the evening to the Palace Hotel, Buxton, for an informal dinner. On May 23, the meeting visited the Aero Engine Development Centre, of Rolls-Royce Limited at Salford, Derby, again conveyed from Buxton by special coaches. Afterwards, they were entertained to luncheon by the Directors of the company, this being followed by a tour of the Oil Engine Division, a project which has cost some £1 million and has been developed over the past eight years.

Later members were taken to Derby station where the meeting terminated.

Irish Summer Train Services

Certain alterations and improvements of service have taken place with the introduction of the summer train services in Ireland. The new timetable of the Great Northern Railway came into operation on May 12. While last summer's non-stop working from Dundalk to Belfast of the 9 a.m. express from Dublin to Belfast, cutting its time by 30 in., is not repeated, from July 6 to September 7 there will be an additional express from Dublin to Londonderry, calling first at Dundalk and then at Goragwood to Portadown, and amalgamating there with the 11.15 a.m. from Belfast to Londonderry—an acceleration of 40 min. from Dublin to Londonderry. From June 24 the 6.25 p.m. from Dublin to Belfast will start 30 min. later and be accelerated 15 min., reaching Belfast in 3 hr. at 9.55 p.m. The 7.30 a.m. express from Dublin to Belfast calls additionally at Gormanston.

In the reverse direction the 3 p.m. from Belfast to Dublin will be allowed 15 min. extra time between June 3 and September 7, reaching Dublin at 6.5 p.m., though even this arrival is 10 min. earlier than the 6.15 p.m. of last summer; on September 9 it will revert to its time of 5.50 p.m. into Dublin. Beginning on June 24, the usual additional 12 noon express from Belfast to Dublin and the 7 p.m. from Dublin to Belfast will run on Sundays, as last summer. Restaurant car service is restored to the 9.35 a.m. from Londonderry to Belfast and the 5 p.m. from Belfast to Londonderry. The "Bundoran Express" (8.45 a.m. from Dublin to Bundoran and 12.25 p.m. return) is restored for the period from July to September inclusive.

C.I.E. Services

The summer timetable of Coras Iompair Eireann will come into operation on June 24. Over the main Dublin-Cork line the 6 p.m. diesel express from Cork to Dublin will retain its winter stop at Limerick Junction and its 109 min. run over the 106.9 miles from there to Kingsbridge (58.9 m.p.h. and the fastest scheduled run in Ireland), instead of being non-stop as

last summer. On the other hand, the evening diesel express from Tralee, last summer starting at 4.10 p.m., will leave at 4.50 p.m., and will follow instead of preceding the 6 p.m. from Cork.

On the former Midland Great Western main line refreshment facilities will be withdrawn from the 2 p.m. from Dublin Westland Row to Sligo, and the 7 p.m. from Sligo to Dublin, but they will be provided on the 9.20 a.m. from Galway to Dublin via Portllington and the corresponding 6.50 p.m. from Dublin to Galway, both of them diesel multiple-unit train sets which provide the fastest service of the day. The latter will call additionally at Tullamore without increase of journey time. The Rosslare boat train from Cork will leave at 6.30 instead of 5.40 p.m. and reach Rosslare Harbour at 10.20 instead of 9.35 p.m.; the evening service from Limerick to Waterford and Rosslare, which last summer started at 6 p.m. and now leaves at 6.25, will reach Rosslare Harbour 5 min. earlier, at 9.55 p.m., an acceleration of 30 min. All C.I.E. refreshment services are now described in the timetables as buffet cars, restaurant cars being no longer indicated.

On the Dublin & South Eastern Section there will be an acceleration of the Sunday services; last summer's 10.30 a.m. from Westland Row to Rosslare Harbour will leave at 10.45 a.m. and arrive 15 min. earlier, at 2.45 p.m. (30 min. acceleration), and the 7.35 p.m. from Harcourt Street will start 25 min. later, at 8 p.m., and reach Rosslare Harbour at 11.55 p.m. as before. In the reverse direction the 7.10 a.m. from Rosslare Harbour will reach Westland Row 20 min. earlier, at 11.10 a.m., while the 5.25 p.m. will start at 5.45 p.m. and be into Harcourt Street at 9.50 p.m. as before. On the introduction of additional diesel locomotives, a more frequent suburban service is to be provided this summer between Amiens Street, Westland Row, Dun Laoghaire, Bray and Greystones. The C.I.E. timetable also states that the change-over to diesel traction on the main lines now being complete, diesels are to be introduced on all the branch services, which will be speeded up in consequence.

Parliamentary Notes

Railway Developments in South Wales

Mr. Raymond Gower (Barry—C.) in an adjournment debate in the House of Commons on May 20, raised the subject of the advantages of the provision of better road and rail communications in Wales, because he felt that the industrial development which had taken place, particularly in South Wales, since the last war, from the point of view of economic efficiency, merited increased attention by the Government and the Ministry of Transport.

Generally, the railway efficiency in Wales seemed to have increased, Mr. Gower added. For example, the passenger trains, and indeed the industrial traffic, from Paddington to South Wales, appeared to be running more promptly and more effectively than some years ago, but there were still one or two black spots. While, for example, the main line passenger trains from London to Cardiff were quick and ran to time, the traveller who wished to go from Cardiff to West Wales had still an unnecessarily long journey.

Similarly, while they welcomed the newly-announced train service between Bangor and Cardiff, they still had possibly two of the worst train journeys in the United Kingdom. He referred to the famous journey between Carmarthen and Aberystwyth. Another very slow line was that of the rail entrance to mid-Wales—the Shrewsbury to Aberystwyth line. He hoped that that, too, would be improved in the very near future.

G.W.R. Traditions

Mr. G. R. H. Nugent, Joint Parliamentary Secretary to the Ministry of Transport & Civil Aviation, after dealing with the road problems, said he wished to speak briefly about the railways in South Wales.

The modernisation of the railways in South Wales, he stated, was proceeding together with big road schemes. Among the projects approved under the railway modernisation plan was a new marshalling yard at Port Talbot. He inspected the site when he was down there at Easter. The Western Area Board hoped to be proceeding with it in the very near future. At the Severn Tunnel, the Board intended to extend the sidings on both sides, which would enable the volume of traffic that the Severn Tunnel could carry, to be increased.

The Board had a comprehensive scheme to build up line capacity between Pyle West Junction and Briton Ferry, particularly to meet the increased needs of traffic from the developments of the Coal Board and the Steel Company of Wales. The Board hoped to start work on two of these schemes this year and on a third one next year. Two of the schemes might cost about £2 million, and the cost of the other one was not far short of this figure. He was much impressed by what he saw of the railway installations there and, in travelling with the railway officials, by the splendid way in which they maintain the high traditions of the old G.W.R.

More Improvements

There were improved communications with the Midlands already, in particular in connection with freight. There would be further improvements when the new junctions at Stratford-on-Avon and Fenny Compton were completed. Although they were a long way from South Wales, these were important; they would link what used to be the old G.W.R. with the

former L.M.S.R. That was part of the modernisation plans.

Diesels would eventually be used universally in the Western Region. They would help particularly in the Severn Tunnel, because they would reduce ventilation problems and enable more traffic to go through.

Diesel multiple-unit trains would be used on the Swansea-Birmingham run, starting on June 17, and would be progressively brought into use in the rural areas.

A new express had been started this year, running daily from Birkenhead to Cardiff, connecting North and South Wales via Shrewsbury, Ruabon, and Chester—a foretaste of what was to come as diesel-hydraulics, as they were properly called, are developed in the Western Region.

Mr. Nugent, concluding, hoped that he had said enough to reassure Mr. Gower that the Government and all other parties concerned had thought ahead about the industrial needs of South Wales, and that they were doing a great deal to improve the transport facilities to enable the great new industries formed there to connect with the rest of the industrial life of the country.

Questions in Parliament

Welwyn Garden City Signals

Lady Tweedsmuir (Aberdeen S.—U.) asked the Minister of Transport & Civil Aviation on May 8 whether he could now make a statement on the results of the further investigations into the passing of signals at Welwyn Garden City by the "Aberdonian" in March.

Mr. Harold Watkinson, in a written reply: This incident is being fully considered by the Chief Inspecting Officer of Railways in the course of his inquiry into the collision at Welwyn Garden City on January 7. I cannot make any further statement until I receive his report on the accident.

Empty First Class Seats

Mr. Frank Allaun (Salford E.—Lab.) asked the Minister of Transport & Civil Aviation on May 15 if he would give a general direction to the B.T.C. that, on long distance trains, second class passengers who are forced to stand should be permitted to occupy empty first class seats.

Mr. Harold Watkinson: No.

Mr. Allaun: Does the Minister think it right that every day, on non-stop long-distance trains, such as the "Mancunian," men, women and young children are having to stand for nearly four hours in corridors and guards' vans, when there are empty first class seats; and could not this situation be dealt with quite simply by the ticket-collectors?

Mr. Watkinson: I think that the answer is two-fold. First, this is a proper matter for the Commission to deal with; it is part of the commercial management of the railways. What is, I think, more important is that on those long-distance trains—this is not well enough known, and perhaps it should be made better known by the Commission—seats are bookable, and people can obtain a seat by taking the trouble to book seats beforehand.

Later, he pointed out that if the guard or other official on the train finds that the train is grossly overcrowded, for reasons which cannot be avoided, he has certain latitude of action.

Contracts and Tenders

Freight wagons and passenger vehicles for British Railways

The British Transport Commission announces the placing of orders for more than 9,600 freight wagons and 86 passenger vehicles in connection with the modernisation plan of British Railways, as follows:—

Freight wagons

Gloucester Carriage & Wagon Co. Ltd., Gloucester: 150 21-ton hopper coal wagons

Hurst, Nelson & Co. Ltd., Motherwell: 150 21-ton hopper wagons
Birmingham Railway Carriage & Wagon Co. Ltd., Smethwick, 40, Staffs: 150 21-ton hopper coal wagons

Pressed Steel Co. Ltd., Cowley, Oxford: 2,950 21-ton hopper coal wagons; 5,550 12-ton container flat wagons, and 544 20-ton ballast and sleeper wagons

Central Wagon Co. Ltd., Wigan: 150 12-ton container flat wagons
Edward Curran Engineering Limited, Cardiff: 400 containers of 70-cu. ft. and 15/20-cwts. capacity, for general merchandise, which can be wheeled into and out of railway vehicles

Passenger coaches

The Metropolitan-Cammell Carriage & Wagon Co. Ltd., Birmingham, 8: 35 bogie corridor first and second class composite coaches for the London Midland Region

The Birmingham Railway Carriage & Wagon Co. Ltd., Smethwick, 40, Staffs: 10 open first class coaches for the Western Region and 20 open second class coaches for the London Midland Region

Charles Roberts & Co. Ltd., Horbury Junction, Wakefield: six corridor first, second, brake, and luggage composite coaches, and 15 corridor composite coaches for the London Midland Region.

British Railways, Eastern Region, have placed the following contracts:—

Joseph Westwood & Co. Ltd., Millwall, London, E.14: supply and delivery of steelwork for construction of superstructure for underline bridge No. 1A over Great North Road (route A.1) between High Dyke Junction and Skilington Junction

R. F. Herron Limited, Ruislip, Middx: reconstruction of roof over 2-9 banks of goods shed at outwards goods depot, Kings Cross

R. Ridd & Son (Contractors) Ltd., Hornchurch, Essex: cleaning and painting of offices, messrooms, stores, workshops, and coaling plant, at Chief Mechanical & Electrical Engineer's Workshops at Stratford

The Cement-Gun Co. Ltd., Brentford, Middx: repairs to reinforced concrete structure at Tilbury Riverside Station.

British Railways, Scottish Region, have placed the following contracts:—

W. C. Simpson & Son Ltd., Edinburgh: cleaning and painting roof of Waverley Station, Edinburgh

P. & W. MacLellan Limited, Glasgow: provision of steelwork for new underbridge at Langbank

Webster Bannerman & Co. Ltd., Glasgow: reconstruction of platforms at Anniesland Station, Glasgow

Industrial Engineering Limited, Glasgow: new plant depot at Shettleston workshops, Glasgow

Fleming Bros. (Structural Engineers) Ltd., Glasgow: provision of steel roofing for new workshops at Kilbirnie Street Depot, Glasgow.

British Railways, Southern Region, have placed the following contracts:—

J. L. Eve Construction Limited, London, S.W.19: repairs to arches, Elephant & Castle to Loughborough Junction

Deeds (Builders) Limited, Hounslow, Middx: renovations, Effingham Junction Carriage Cleaning Shed

R. Corben & Son Ltd., Dover, Kent: new roof to Up platform, Birchington-on-Sea

A. Bagnall & Sons Ltd., Teddington, Middx: renovations, Bookham Station
W. R. Payne & Sons, Shipley, Yorks: renovations, Paddock Wood and Deal Stations

Caffin & Co. Ltd., London, W.C.2: renovations, Motpur Park, Worcester Park and Stoneleigh Stations

R. Corben & Son Ltd., Maidstone, Kent: staff accommodation, Sheerness Dockyard

Matthew T. Shaw & Co. Ltd., London, E.14: reconstruction, Cannon Street, Cathedral Street Bridge

Arthur Scull & Son Ltd., London, W.C.2: installation of central heating, Orpington

Meridian Airmaps Limited, Shoreham, Sussex: aerial survey, East Kent area

Fairey Air Surveys Limited, London, W.1: aerial surveys, Penge West, Anerley, Brockley, Honor Oak Park, and Sydenham

E. C. MacDermot & Company, Wembley, Middx: new concrete roadway, Mitcham

Aubrey Watson Limited, London, S.W.1: repairs to stonework, Blackfriars riverbridge

Spanner Boilers Limited, London, S.W.2: boiler installation, Angerstein Depot.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from India for axleguards and horn cheeks, as follows:—

(a)

25,590 axleguard, horn cheeks (B.G.) to I.R.S. drg. No. W.476 alt. 10 and I.R.S. specification No. M3/49 with Corr. No. 1 of March 1954 class II or M5/54 or I.S.I. specn. No. 210 grade 17 (class Eb1).

(b)

15,590 bogie horn cheeks (B.G.) to I.R.S. drg. No. W.626 alt. 10 and to I.S.I. specn. No. 210 grade 17 cast iron (class Ea1).

Delivery of (a) is required by December 30, 1957, and half of (b) by February 1, 1958, with the remainder by August 1, 1958. Tenderers should give the earliest date of delivery that they guarantee to adhere. The issuing authority is the Director General of Supplies and Disposals. The tender No. is P/SRI/16777-G/1. Bids should be sent to the Director General of Supplies and Disposals, Shahjahan Road, New Delhi. The closing date is June 14,

1957. A set of tender documents is available for loan to United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, W.C.1.). A photo-copy set can be purchased from the Branch for 13s. Cheques and postal orders should be made payable to the Principal Accountant, Board of Trade. Firms wishing to collect photo-copy sets of tender documents are advised to notify the Branch in advance of their requirements. The reference ESB/13128/57 should be quoted in any correspondence with the Branch.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from India for signalling equipment as follows:—

1,219 signal and interlocking bases 18086-G for 6½ in. tube to I.R.S. (S) drawing No. S.2012 alt. 2 and to I.R.S. specn. No. S-10-53 with addn. and corrig. No. 1 of May, 1955, and to I.S.I. specn. No. 210, grade 12.

The issuing authority is the Director-General of Supplies and Disposals. The tender No. is W.P.-2/4032/D/ADHOC/PUR. Bids should be sent to the Director-General of Supplies and Disposals, Shah-jahan Road, New Delhi. The closing date is June 12, 1957. A set of tender documents, but not drawings or specifications, is available for loan to United Kingdom firms on application to the Branch (Lacon House, Theobalds Road, W.C.1.). A photo-copy set can be purchased from the Branch for 17s. Cheques and postal orders should be made payable to the Principal Accountant, Board of Trade. Firms wishing to collect photo-copy sets of tender documents are advised to notify the Branch in advance of their requirements. The reference ESB/12649/57 should be quoted in any correspondence with the Branch.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from the International Co-operation Administration for a large quantity of rails and chemicals for Turkey. Full details can be obtained from the Branch (Lacon House, Theobalds Road, W.C.1.) quoting reference ESB/13253/5M/L.C.A.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from Portuguese West Africa for low-side wagons, platform wagons, and tank wagons as follows:—

- (a) 30 low-side wagons, type L
- (b) 30 platform wagons, type P
- (c) 10 tank wagons.

The closing date is June 21, 1957, at the offices of the Directorate, 13, Praça do Principe Real, Lisbon, and at the head office of the Administrative Commission of the Angola Development Fund, in Luanda. Provisional deposits of (a) Esc. 125,000 (£1,562); (b) Esc. 125,000 (£1,562) and (c) Esc. 50,000 (£625), must have been made with the Banco de Angola in Lisbon, or with its branch in Luanda, up to the day before that mentioned above. The above deposits may be substituted by approved bank guarantees for similar amounts, which must be presented up to eight days before the above date. Copies of the tender conditions and specifications in Portuguese, are available at a cost of Esc. 80 (£1). No further information is available at the Board of Trade about this call for tenders. The reference ESB/10777/57 should be quoted in any correspondence with the Branch.

Staff and Labour Matters

Engineering Workers' Pay

Agreement was reached on May 23 between the Engineering & Allied Employers' National Federation and the Confederation of Shipbuilding & Engineering Unions, under which skilled workers in the engineering industry receive an increase of 11s. a week and semi-skilled and unskilled workers increases of 10s. and 9s. respectively. The agreement has effect from May 27.

In reaching this settlement it was agreed between the parties that there should be a standstill on applications for increased wages for at least one year and it was also agreed that the unions affiliated to the C.S.E.U. would use their influence to bring to an end without delay all practices contrary to the wellbeing of the industry.

Notes and News

British Institute of Management Change of Address.—The British Institute of Management and the Institute of Industrial Administration announce that from June 1, the address of their new headquarters will be Management House, 80, Fetter Lane, London, E.C.4; telephone Holborn 3456.

British Electrical & Allied Manufacturers' Association Publicity Conference.—The British Electrical & Allied Manufacturers' Association publicity committee has arranged that the 1957 publicity conference will take place at the Connaught Rooms, London, W.C.2, on November 7 and 8. The speakers will include guests from outside the industry as well as members of the Electrical Manufacturing Industry.

Marylebone—St. Enoch Car-Sleeper Service.—British Railways are to introduce a new overnight car-sleeper train service between Marylebone and Glasgow St. Enoch for conveyance of motorists and cars. The first train will leave Marylebone at 7.45 p.m. on June 3, and the service will continue each Monday and Wednesday until September 11. In the reverse

direction the train will run on Sunday and Tuesday nights from June 2 to September 10, leaving St. Enoch at 6.38 p.m.

Blackpool Locomotive Depot to be Modernised.—The locomotive depot at Blackpool Central, London Midland Region, is being modernised under a scheme which includes renewal of the engine shed roof, installation of electric lighting, and provision of amenities for the staff. The work is expected to be completed by the autumn. The new shed roof will be constructed with steel roof beams carrying patent glazing and continuous smoke troughs.

Vokes Group Special Feature Exhibition.—An exhibition showing the whole range of products of the Vokes Group of Companies was held at the Kensington Palace Hotel, London, earlier this week. Products seen for the first time included an automatic screen type air filter for air conditioning and ventilation systems, a series of large capacity oil-bath air intake filters to supplement the existing range, and a development in lubricating oil filter elements designed to offer greater flow with lower resistance characteristics.

French Railway Officers Visit Scottish Region Installations.—The accompanying illustration shows a group taken at the North British Hotel, Edinburgh, during the recent visit by chief officers of the French National Railways to installations in the Scottish Region. At the invitation of Mr. James Ness, General Manager of the Region, S.N.C.F. officers inspected the marshalling yard at Thornton and the yard which is under construction at Millerhill and the diesel locomotive depot at Leith Central. *Back row (left to right):* Mr. L. J. M. Knotts, Signal Engineer, and Mr. M. S. Hatchell, Chief Mechanical & Electrical Engineer, Scottish Region; Mr. C. M. Hannoyer, General Manager, French Railways Limited, London, Monsieur Graff, Ingénieur Principal au Service de la Voie et des Bâtiments de la Région du Nord; Mr. M. G. Maycock, Chief Civil Engineer, and Mr. J. Blair, Carriage and Wagon Engineer, Scottish Region.

Front row (left to right): Mr. C. Ross Campbell, Motive Power Superintendent,



Officers of the French National Railways and of the Scottish Region during the visit to railway installations in Scotland

Scottish Region; Monsieur Remond, Ingénieur Principal à la Direction des Installations Fixes de la S.N.C.F.; Mr. G. W. Stewart, Assistant General Manager, Scottish Region; Monsieur Camus, Ingénieur Principal au Service de L'Exploitation de la Région du Nord; Mr. F. C. Margetts, Chief Operating Superintendent, Scottish Region; Mr. J. C. Kubale, Metropolitan Vickers-G.R.S. Limited.

B.I.S.R.A. Corrosion Exhibition.—The Corrosion Section of the British Iron & Steel Research Association held an exhibition at the London laboratories, 140, Battersea Park Road, London, S.W.11, on May 28-30 to illustrate in a general way the aims, objects, and achievements of the Section. Members of the technical Press were given the opportunity of seeing much of the work being carried out, including the inspection room, main laboratory, rotor, and stress-corrosion rooms. The exhibits depicted inter alia the effect of atmospheric conditions in different industrial environments, and those of low-alloy additions on corrosion resistance, protective coatings, such as lead, zinc, and aluminium, and various methods of testing.

Branch Lines in Northern Ireland to Close.

—The Northern Ireland Government has confirmed its intention to close down the Great Northern Railway Board lines in Armagh, Tyrone, and Fermanagh, so as to be relieved of the losses on these lines. They will be closed before October 1, 1957. The decision was reached after a recent conference in the Law Courts, Belfast, between Mr. Sean Lemass, Irish Minister for Industry and Commerce, and his advisers, and Lord Glentoran, Stormont Minister of Commerce, and his officials. Further talks will take place about the future cross-Border transport arrangements in the areas served by the Omagh-Enniskillen-Newtownbutler, Portadown-Armagh-Tynan, and Bundoran Junction-Belleek lines.

Mond Nickel Birmingham Exhibition.

The Mond Nickel Co. Ltd. is staging an exhibition featuring the properties of nickel and related materials at the Engineering Centre, Stephenson Place, Birmingham 2, on May 28-31. The subjects covered will include corrosion-resistance, surface protection, weldability, high magnetic permeability, permanent magnets, controlled expansion, controlled Curie point, constant modulus of elasticity and mechanical properties at all temperatures from sub-zero to 900° C. The materials include iron powders, platinum metals and S.G. iron besides many nickel-containing alloys and steels. Many of the exhibits take the form of working demonstrations. Tickets are not required.

"Travolators" for Bank Station.—Since the decision was made to install escalators at the Bank Station to serve the Waterloo & City line of British Railways, Southern Region, a closer examination has been made of the problem and the Southern Area Board has now decided to introduce Travolators instead of escalators. A start on the preliminary work will be made early in June. The Travolators will be the first to be used in this country and the scheme will save both time and money as compared with the original escalator scheme. A Travolator is a modification of the escalator. It is a continuous moving belt giving the safety features of the escalator and being equipped with the familiar moving handrails. It works at similar speed to an escalator, and consists of a series of metal strips fitted together to

form a continuous surface. At the Bank Station a new tunnel will be constructed to take two Travolators each 4-ft. wide and about 300-ft. long. The existing subway will be retained in its present form for emergency purposes and for passengers walking against the main flow during the business hours.

Head Wrightson Higher Profit.—Head Wrightson & Co. Ltd. announces an increase in group trading profits in the year to January 31, 1957, to £1,446,163, compared with £1,215,599 in the previous year. A final ordinary dividend of 15 per cent (12½ per cent) brings the total on the ordinary capital of £1,181,250 to 22½ per cent, an improvement of 2½ per cent on the previous year.

Holset Engineering Co. Ltd.—An announcement by the Holset Engineering Co. Ltd. states that an agreement has been concluded with the Schwitzer Corporation of Indianapolis, U.S.A., whereby Holset will manufacture, sell, and service non-bonded rubber crankshaft dampers and a range of turbochargers, both of Schwitzer design as currently supplied to the American automotive industry. Both products are available immediately from the Holset Engineering Co. Ltd., Turnbridge, Huddersfield.

B.M.M.O. Annual Meeting.—At the annual meeting of the Birmingham & Midland Motor Omnibus Co. Ltd. on May 8, Mr. J. Spencer Wills, the Chairman, stated that Mr. J. W. Watkins had resigned from the board on appointment as a Member of the British Transport Commission. He welcomed to the board Mr. David Blee, General Manager, London Midland Region, British Railways. The poor summer of 1956 and rising costs had made necessary an application for increased fares which had been granted in full. In the interval between the lodging of the application and the hearing, a wage award was made which would cost the company a further £160,000 a year. Permission was granted by the Traffic Commissioners for an appropriate part of the surcharges under the Hydrocarbon Oil Duties (Temporary Increase) Act, 1956, to be retained when the extra 1s. a gallon duty was removed recently.

Railway Students' Association Visit High Peak Railway.—Members of the Railway Students' Association, London School of Economics & Political Science, visited the Cromford & High Peak Railway on May 25. The party was received at Derby by Mr. A. D. Cochran, District Operating Superintendent, Derby, London Midland Region, and was first conveyed to Cromford Wharf, on the Derby-Manchester main line. In the old engine repair shops there, cast-iron, fish-bellied rails bearing the initials C. & H.P.R. still flank the inspection pit. Evidence of subsequent L.N.W.R. ownership survives in such features as lineside notices along the route. The working of traffic, now almost entirely limestone, on Sheep Pasture incline, which is 1,320 yd. long and rises at 1 in 8-9, was examined. Haulage is by chain attachment to a continuous wire-rope, controlled by a winding engine at the top. The next incline, Middleton, is 800 yd. long, rises at 1 in 8½, and is worked in a similar manner, but by the sole survivor of eight winding engines supplied by the Butterley Iron Works in 1825; it is of the two-cylinder low-pressure condensing beam type. From Middleton Top, members were carried in a train of open wagons and brake vans

across wild moorland as far as Friden, where road transport was rejoined. Mr. Cochran stated that increased traffic might necessitate new equipment for night operation; the limited number of restricted-gauge wagons available also was a problem to be faced in the future.

New Car-Sleeper Office at Perth.—To provide improved booking facilities for the increasing traffic by the "car-sleeper" trains from Perth to London, the Scottish Region has opened a new car-sleeper ticket office on No. 4 platform at Perth Station. The premises have been converted from a kiosk which has been out of use for many years.

Derwent Valley Light Railway Traffic.—At the annual meeting of the Derwent Valley Light Railway on April 25, Mr. Claude W. Thompson, the Chairman, stated that tonnage carried during the year had increased by 5,238 tons, including 1,943 tons of sugar beet. A grain drying plant at Dunnington became operative for the 1955 harvest, the barley being dried, stored, and forwarded by rail in the spring of 1956. That from the 1956 harvest was forwarded as it was dried, and accounted for an increase in grain carryings from 45 tons in 1945 to 7,037 tons in 1956. During the year, 2,111 tons of raw sugar were carried for storage. Government stores decreased by 2,111 tons, because of the closure of wartime installations, and timber fell from 7,081 tons in 1955 to 1,457 tons in 1956; again a direct result of change in Government policy. Coal and coke continued to be one of the main traffics, with a tonnage of 24,030 tons against 23,387 tons in the previous year, despite increasing road competition. A joint effort with British Railways to attract agricultural traffic back to rail by means of competitive rates had not so far produced any tangible results. Dividends at the rate of 5 per cent on the preference

Royal Visit to Hull



Mr. F. Grundy, Chief Traffic Manager, North Eastern Region, being presented to the Queen on her arrival at Hull Paragon Station. Mr. R. Redpath, Stationmaster, is on the extreme left

shares and 5 per cent on the ordinary shares were proposed. The financial results were given in our issue of April 26.

British Industrial Truck Association—The Industrial Truck Manufacturers' Association has recently been reconstituted as the "British Industrial Truck Association," the object being to meet the challenge emanating from the proposed European Free Trade Area by maintaining the prestige of United Kingdom manufacturers in the industrial truck field. The Association is already taking a leading part in all deliberations and activities of its counterpart associations on the Continent, in America, and elsewhere. The address of the Association and the official secretariat is: Peat, Marwick, Mitchell & Company, 94/98, Petty France, London, S.W.1. Telephone, Abbey 7101.

Competition in European Free Trade Area.—At a joint meeting of the Incorporated Plant Engineers, the Institute of Industrial Administration, and the Local Productivity Committee held in Blackburn on May 23, Mr. L. Landon Goodman, Industrial Specialist of the British Electrical Development Association, stated that if, and when, Britain entered into some arrangement with the European Common Market, it was going to have tough competitors, and strong competition, in many fields. The increased use of electricity and automation in industry would be two of the major factors in helping Britain not only to maintain its present trade in Europe but to increase it. "Let us make no mistake," he declared, "there is plenty of scope here, for we have to remember that since the end of the war, there has been a large increase in trade in manufactured goods, between the countries of Western Europe, but our trade in these goods to this area has declined." He went on to say that automation offered great prospects and scope for British industry in the proposed Free Trade area. Automation generally required large-scale production and large-scale production required large-scale markets, such as that given by the 240 million people in Europe. Not only would the manufacturers of consumer goods made by automatic processes benefit, but also the makers of specialised and advanced automated equipment, such as automatic and higher-output machinery.

Forthcoming Meetings

Open currently and until further notice.—

British Transport Commission: Historical Exhibition "Transport Treasures" in Shareholders' Meeting Room, Euston Station, from 10 a.m. to 6 p.m. on weekdays, and 2 to 6 p.m. on Sundays. Admission 6d.

May 31 (Fri.).—The Railway Club, at 320, High Holborn, London, W.C.1, at 7 p.m. Paper on "Some railway aspects of railway colour photography," by Mr. R. E. Vincent.

June 1 (Sat.) to June 6 (Thu.).—Permanent Way Institution. Annual Summer Convention at Morecambe, Lancs.

June 3 (Mon.).—Indian State Railways, at the Rembrandt Hotel, Thurloe Place, S.W.7, at 7 for 7.30 p.m. Annual reunion dinner, preceded at the same place by a tea at 4 to 6.30 p.m., for officers and/or their wives.

June 6 (Thu.).—The Model Railway Club, at Caxton Hall, Westminster, S.W.1, at 7.45 p.m. Talk on "Those were the days," by Mr. Frank Shaw.

Railway Stock Market

After their recent reaction, stock markets steadied and with buyers more in evidence, values were inclined to rally. Sentiment was helped by a good recovery in 3½ per cent War Loan to £69½ earlier in the week, after touching £69, its lowest so far this year. Buying of industrial shares has been selective. Some caution has been induced by the continued emphasis in company reports that profit margins have been further narrowed this year by rising costs.

Among rail stocks, Canadian Pacific have reflected the easier trend on Wall Street and were \$69½, compared with \$70½ a week ago. Based on last years 7 per cent dividend, which seems likely to be at least maintained, Canadian Pacific offer a yield of over 4½ per cent at their current price, which is not unattractive when compared with the moderate yield on many other Canadian stocks. They are a promising means of acquiring a financial interest in the future of the Dominion. The 4 per cent non-cumulative preference stock has eased from £58 to £56½ and the 4 per cent debentures, with a decline from £67½ to £66½, also reflected the recent trend in sterling securities. White Pass shares have come back further from \$244 to \$23½.

Antofagasta ordinary stock remained active, but has reacted from 39 to 37½ with the preference stock a point down on balance at 48½, though the 5 per cent (Bolivia) debentures strengthened to 93½. San Paulo Railway 3s. units again received some attention and at 4s. 1½d. more than held the rise recorded a week ago. Brazil Railway bonds strengthened afresh to 7 and Taltal Railway shares were quoted at 11s. 6d., but Costa Rica ordinary stock moved fractionally lower at 25. Paraguay Central prior debentures have been quoted at 10½, while in other directions, International of Central America shares maintained their recent rise to \$45½. Mexican Central "A" bearer debentures eased to £69½.

In other directions, Nyasaland Railways shares have been firmer at 12s. 9d. on attention drawn to the possibility of higher dividends as time proceeds; the 3½ per cent debentures were 60½xd.

Among shares of locomotive builders and engineers a feature has been continued activity in North British Locomotive, which advanced further to 21s. 3d. compared with 18s. 6d. a week ago. Hurst Nelson were 37s. and Birmingham Wagon 17s. 9d. while G. D. Peters have again been quoted at 30s.

Beyer Peacock were quoted in their new form of 5s. units and were more active around 10s. 10½d., almost equivalent to last week's quotation of 44s. for the £1 shares. Charles Roberts 5s. shares were 12s. (the price mentioned a week ago should have been 11s. 10½d.) and Wagon Repairs 5s. shares have been well maintained at 14s. 3d. while Gloucester Wagon 10s. shares at 13s. 6d. were within 3d. of the level a week ago.

Ruston & Hornsby attracted and gained 6d. at 33s. T. W. Ward at 81s. 6d. lost part of their recent big advance, while in other directions, F. Perkins 10s. shares held steady at 16s. and the 10s. shares of the Dowty Group were little changed at 36s. 9d. Among steel shares John Summers were 28s. 10½d. "ex rights" to the new shares, which were at a premium of 9s. over the issue price of 20s. Associated Electrical were 66s. 3d. compared with 67s. 3d. a week ago, and General Electric 56s. 9d. compared with 58s. while English Electric at 58s. were within 9d. of the price a week ago. Vickers have strengthened to

44s. 3d. and John Brown to 35s. 6d. After easing, Babcock & Wilcox improved to 72s. 3d. Tube Investments were 64s. 10½d., G. & J. Weir 5s. shares 41s. and Guest Keen 57s. 1½d. Shares of the Channel Tunnel Company came in for profit taking after their recent big speculative rise, and reacted sharply to 16s. 9d. compared with 26s. 3d. a week ago.

OFFICIAL NOTICES

OVERSEAS Railway Equipment. **OVERSEAS** COMMERCIAL and TECHNICAL REPRESENTATIVE required by well established British Company engaged in supply of proprietary railway equipment. Considerable experience in rolling stock field essential, together with ability to survey British Commonwealth requirements both commercial and technical. This is a major executive position and applicants must have well established contact in this field and be prepared for extensive travelling overseas. —Replies to R.C.D., Hamill Toms Ltd., Regency House, Montpellier, Cheltenham.

SULZER BROS. (LONDON) LTD., require **CONTRACTS ENGINEER** for their Diesel Traction Department in London. Age 25-40, of good general education and technical background. Graduate or Corporate Member of Senior Institution preferred. Position offers interesting prospects in world wide organisation in a rapidly expanding field to man of character, keenness and energy. Permanent appointment with a good salary and staff pension scheme. —Write with full details of education, training, experience, and salary required, to Manager, Traction Dept., 31, Bedford Square, W.C.1, marking envelope "Private and Confidential."

Doncaster By Pass Motorway

ENGINEERS REQUIRED

THE WEST RIDING OF YORKSHIRE COUNTY COUNCIL is to undertake on behalf of the Ministry of Transport and Civil Aviation, the design and supervision of construction of this important By Pass which is one of the largest motorway schemes so far programmed to be undertaken by a County Council. In addition, other road and bridge improvement schemes of considerable magnitude are anticipated shortly.

The following appointments are to be made from candidates of any age and will offer outstanding experience in all aspects of modern bridge and highway engineering design and construction.

Senior Bridge Engineers	up to £1,625 per annum.
Assistant Bridge Engineers	up to £1,230 per annum.
Assistant Road Engineers	up to £1,230 per annum.
Junior Assistant Road and Bridge Engineers	A.P.T. GRADES I to IV.
Assistant Laboratory Engineer	up to £1,230 per annum.
Senior Assistant Mechanical Engineer	up to £1,515 per annum.
Assistant Mechanical Engineer	up to £1,230 per annum.

Candidates must have appropriate professional qualifications and experience as follows:—

- Bridge appointments—in modern bridge design and construction.
- Road appointments—in modern highway layout and construction.
- Laboratory appointment—in soil mechanics.
- Mechanical appointments—in the construction, use, repair and maintenance of modern civil engineering plant and transport.

All appointments are permanent and pensionable and subject to normal County Council regulations governing conditions of service, subsistence and travelling allowances.

Application forms and further particulars from the County Engineer and Surveyor, County Hall, Wakefield. Completed forms to be returned by 24th June, 1957.

SALE OF RAILWAY MATERIAL.—200 Tons Serviceable 95 lb. B.H. RAILS, chiefly in 60 ft. lengths. 2,500 Relayable S.I. TYPE CHAISED SLEEPERS. 1,000 Relayable PLAIN SLEEPERS. Relayable CROSSING TIMBERS. Serviceable Turnouts, fastenings, etc., to suit. 500 Tons 60/65 lb. Relayable F.B. RAILS together with complete Turnouts and Crossings, etc. Delivery Ex Stock subject to remaining unsold.—Eagre Construction Co. Ltd., East Common Lane, Scunthorpe. Telephone: 4513/7.

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